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HISTORY
OF THE
BERWICKSHIRE
NATURALISTS' CLUB.

INSTITUTED SEPTEMBER 23, 1831.

"MARE ET TELLUS, ET, QUOD TEGIT OMNIA, CÆLUM."

1850—1856.

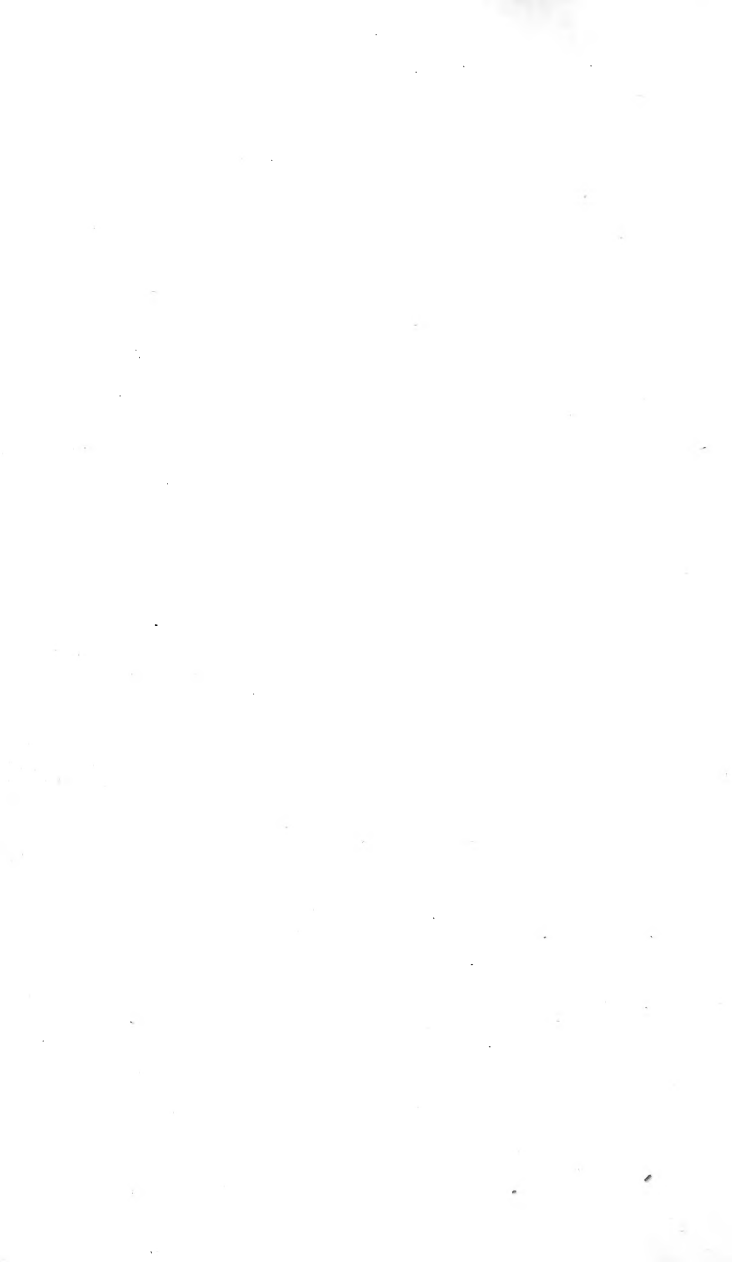


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1857.





PROCEEDINGS

OF THE

BERWICKSHIRE NATURALISTS' CLUB.

Address to the Members, delivered at the Anniversary Meeting, held at Warkworth, September 18, 1850. By WILLIAM BRODERICK, Esq., President.

GENTLEMEN,

SINCE by your favour I have been placed in the honourable position of your President, on this occasion it becomes my duty, as well as pleasure, to offer you a short account of our proceedings during the year, and resign the Chair I have for that period been permitted to occupy.

Our last Anniversary Meeting was held at Etal, and I must mention with regret that it was so thinly attended, both as being an anniversary meeting, and also because our President had provided most liberally those "creature comforts" which add so much to the physical gratifications of the day; yet to a table furnished for twenty, but six members sat down, greatly to the disappointment of our most hospitable President. The dinner party was increased by only one, the members present being Capt. Carpenter (President), Dr. Johnston, Dr. Clarke, Rev. Thomas Knight, Rev. H. Evans, Mr. Gregson, and Mr. George Carpenter. The weather being favourable for a walk, the Club, after breakfast, strolled along the sides of the Till below

Etal, where the following plants were noticed :—*Campanula latifolia*, *Parietaria officinalis* β . *erecta*, *Rosa villosa*, *Aspidium aculeatum*, *Agaricus rotula*, *Collema crispum*, and *Nostoc muscorum*. The latter is new to our district.—After dinner the Address from the Chair was read, and Mr. Broderick was afterwards unanimously elected President for the ensuing year. Mr. Gregson exhibited a locust which had been taken on Bowsden Moor a few days previously. Another specimen had been captured about the same time at Tweedmouth. Capt. Carpenter proposed Dr. Francis S. Cahill as a member, and the motion was seconded by Dr. Johnston. Mr. Stephens was admitted a member.

Berwick upon Tweed, October 18th, 1849.

On this day the Club mustered in strength, and commenced a very pleasant meeting by doing justice to the cheering and well-furnished breakfast-table of Mr. Macbeath. They were afterwards joined by other members, and the meeting embraced the following names :—The President, Dr. Johnston, Mr. Embleton, Mr. Selby, Capt. Carpenter, Dr. Clarke, Rev. J. Dixon Clark, Mr. Macbeath, Rev. W. Darnell, Mr. Home, Mr. J. Turnbull, Rev. H. Evans, Major Elliott, Mr. Clay, Mr. Turnbull, Mr. Renton, and Dr. Hood.

The Minutes of the Etal meeting having been read and confirmed, Dr. Francis S. Cahill was elected a member.

Captain Carpenter moved that henceforth a list containing the name and address of each member be printed annually, and, upon the votes being taken thereon, the motion was carried in the affirmative.

The following places were agreed upon for the meetings of the ensuing summer : viz.

May, 1st Wednesday, Cornhill.

June, 3rd Wednesday, Preston.

July, last Wednesday, Dunsdale.

September, 3rd Wednesday, Warkworth.

This necessary business having been completed, the members separated until the dinner-hour. A party proceeded to Hutton-mill Bridge, whence they followed the sinuous Whiteadder downwards for about three miles to Edrington Castle. The walk was in every respect a delightful one, the air balmy, the river full to its margin, and its banks and haughs beautiful in the

extreme, with a vegetation enlivened everywhere by the tints of autumn. During the walk, little was noticed beyond the general effect and beauty of the varied scenery. The *Anacharis alsinastrum* was pointed out by its discoverer there (Dr. Johnston) in profuse abundance, and still flowering freely. *Rubus cæsius* and *Scrophularia Ehrharti* were also amongst the plants noticed. *Inula dysenterica* was looked for in its station in Tibby Fowler's Glen, but in vain.

At four o'clock a most comfortable dinner awaited the Club at their house of rendezvous—the Red Lion; after which the following papers were read:—1st, "On the Antiquities and Remains of Abbey St. Bathans," by George Turnbull, Esq.; 2nd, "On the Insect Miners of the Primrose Leaf," by Mr. James Hardy; and 3rd, "Notes on *Convallaria polygonatum*," by Dr. Johnston.

Mr. Selby exhibited a drawing of the Blue Shark (*Carcharias glaucus*, Cuv., Yarr. Br. Fish. ii. p. 498), made from a specimen captured near Scarborough during Sept. 1848: also a drawing of an apparently undescribed species of Agaric, which he found growing on the moors above Twizell House in Sept. 1849.

Dr. Johnston exhibited a specimen of Barley, in which no less than seven heads grew from the summit of the same straw, analogous in this respect to the variety of Egyptian wheat. The specimen was gathered at Linthaughlee, Roxburghshire.

Dr. Hood exhibited a specimen of the *Vanessa C. album* butterfly, captured by himself in Berwickshire during the summer of 1845; and a specimen of *Locusta migratoria*, taken during that harvest in a field on his farm near Coldingham.

Mr. Macbeath proposed Mr. W. H. Logan, Berwick, as a member, and the motion being seconded by Mr. Home, was ordered to be placed on the Minutes.

Cornhill, May 1st, 1850.

The members who attended this meeting were:—The President, Dr. Johnston, Rev. John Baird, Mr. Selby, Capt. Carpenter, Dr. Clarke, Rev. J. Dixon Clark, Mr. Macbeath, Mr. Rowe, Mr. Boyd, Rev. Geo. Walker, Mr. Gregson, Rev. Wm. Lamb, Mr. Hepburn, and Mr. Douglas.

The morning walk was directed from Cornhill to Coldstream Bridge, thence down the south side of the Tweed to its confluence with the Till, thence to Saint Cuthbert's ruinous chapel, and

by the more pleasant and picturesque banks of the Till to Twizell Castle; whence the party returned to Cornhill by following the public road. The plants observed during the walk, though not worthy of mention from their rarity, were many of them lovely to look upon, and such as usually greet us at every May meeting. *Ballota nigra* was noticed in the churchyard at Cornhill; and on the margin of the Tweed opposite Lennel, *Stellaria nemorum* in two or three large patches. The banks of the Till, between the Chapel and Tillmouth Bridge, were enlivened with sloes and geans; and a tree of the bullace plum, in the same locality, furnished some good specimens for the herbarium.

Mr. Hepburn has kindly furnished his notes of the birds and insects worthy of notice. The Tree Pipit (*Anthus arboreus*) and the Willow Wren (*Sylvia trochilus*) were widely distributed over the Cornhill district; and with the exception of a pair of Sandpipers (*Totanus hypoleucos*), at the mouth of the Till, these were the only summer birds of passage observed. We collected the following insects:—*Helobia nivalis*, *Stomis pumicatus*, *Phædon marginella*, *P. tumidula*, *Philonthus decorus*, *Tachinus rufipes*, *Othius fulvipennis*, *Haltica nemorum*, and *Andrena Trimmerana* ♂. The Coleoptera were chiefly obtained by the banks of the Till; and the Sandbees as they were sleepily basking by their burrows on the banks of the Tweed.—At this meeting Mr. Logan was admitted a Member.

On the 19th of June the Club assembled at Reston, anticipating with pleasure a visit to the noble cliffs of St. Abb's Head, and in this they were not disappointed. The day proved most propitious, and after breakfast the larger portion of the members present started for the coast. From arriving too late, the Secretary was unable to join in this ramble, but with Dr. Clarke sauntered up the Eye as far as Houndswood; and near Coveyheugh Mill, hard by the railroad, he discovered *Rosa Sabini*, for the first time noticed in Berwickshire; there were several bushes of it growing intermixed with *Rosa spinosissima*.

The rest of the party followed the high road as far as the village of Coldingham, after which the walk was over more interesting ground. The grand and broken cliffs which guard this part of the coast were soon reached, and formed a striking contrast to the unruffled surface of the ocean, which, on this occasion, had laid aside all its terrors and assumed the form of perfect

peace. Our numbers appeared but little to disturb the flocks of guillemots and gulls which had here selected their breeding-place, and were at this time busily employed in fulfilling the universal impulse to increase and multiply. After proceeding for some little distance along the brink of the cliffs, the party turned their thoughts homeward, visiting Coldingham Lough and Moor, on which latter spot numbers of that pretty little butterfly, the *Melitæa Artemis*, arrested their steps; and after the entomologists had added various specimens to their collecting-boxes, the order of march was resumed, as the appointed dinner-hour was rapidly approaching, and continued at a pace too rapid for useful observation.

Of the insects collected during the day, as communicated by Mr. Hepburn, the most interesting was undoubtedly the *Melitæa Artemis*, which proves new, not only to Berwickshire, but also to the Scottish fauna. Mr. Hepburn had previously captured six specimens in the same locality. The *Pontia Cardamines*, *Pontia Rapæ* and *Napi* were noticed, and the *Polyommatus Artaxerxes*, once so highly prized, was taken about the "Head"; with the common *Polyommatus Alexis*. The *Lycæna Phlæas* and the *Hipparchia Aegeria* were seen so bright and beautiful, as to induce one to suppose that the second brood for the season had appeared. Of the day-flying moths, *Euclidia Mi* was taken on the cliffs, and other specimens were elsewhere observed. On a hedgerow beyond Coldingham, *Cimbex femoratum* was taken, and also *Alantus viridis*, a smaller species of the same family. *Selatosamus aneus* was very common about the Head. *Carabus violaceus* was seen; and *Hylobius abietis*, of very large size, was taken on the brink of a precipice far from any wood.

The members assembled at dinner were:—The President, Dr. Johnston, Mr. Selby, Captain Carpenter, Dr. Clarke, Rev. J. Dixon Clark, Rev. G. Walker, Mr. Dunlop, Rev. Geo. Rooke, Rev. H. Evans, Mr. Hepburn, Mr. Renton, Dr. Hood, Rev. S. Fyler, Rev. W. Darnell, and Dr. F. S. Cahill.

After the Minutes of the last meeting had been read, Mr. Selby nominated John Church, Esq., as a member, and this was seconded by Mr. Broderick. The Rev. G. Rooke proposed Wm. Gray, Esq., of East Bolton; the seconder being the Rev. J. Dixon Clark.

Mr. Selby next laid before the Club specimens of the horns

of the Fossil Ox (*Bos primigenius*), with Notes of the occurrence of that species in our district.

Mr. Hepburn communicated to the meeting a paper on the habits of the Rook.

Dr. Johnston exhibited a specimen of *Filaria Carabi*, $11\frac{1}{2}$ inches in length, which had been taken from the body of a *Carabus violaceus*.

Mr. Hepburn exhibited some rare insects; and he made also some remarks on the use of chloroform in killing insects, and more especially the Myriapoda.

The President exhibited specimens of the new *Nemophila maculata*, a double Pansy, and a new variety of Fuchsia, with the expression of a hope that his example in this particular of showing new flowers would be followed by other members.

Since the meeting Dr. Johnston has received specimens of *Thlaspi arvense* from the Rev. John Baird of Yetholm. It has appeared in a field within 100 yards of the manse in great profusion, and for the first time in the parish, so far as is known to Mr. Baird. It may have been introduced with corn and clover seeds; but some doubt hangs over its origin*.

Dr. Johnston has also detected at Lamberton Shields, in a hedge on the road-side, the *Rosa gracilis* of Smith, whose description is truly excellent and characteristic†.

Dunsdale, July 24th.

On this day the heavens, which usually smile so favourably on our meetings, presented nothing but frowns and tears. The range of hills, amidst which our place of rendezvous was situated, at an early hour became enveloped in mist and rain; and although a few adventurous members were found sufficiently zealous to set the elements at defiance in the pursuit of science, still the pleasures of the day were entirely broken in upon, and the hopes of any gratifying discoveries effectually dissolved.

The members present at dinner on that occasion were, the

* Mr. Baird has since gathered in the same field the *Galeopsis Ladanum*, hitherto unnoticed in our district.

† *Ranunculus hirsutus*. In a field near the Heather-house, Bambro'-shire, Mr. Geo. R. Tate.

Rumex pratensis. Not uncommon in the district, but overlooked until the character of the plant was pointed out by Wm. Borrer, Esq., during his visit to Berwick in September last.

Rev. J. Dixon Clark, Mr. Embleton, Rev. George Rooke, Mr. John Boyd, and Mr. J. Turnbull.

John Church, Esq., and William Gray, Esq., were elected Members; and W. Smellie Watson, Esq., of Edinburgh, and John Craster, Esq., of Craster Tower, were proposed.

The majority of the small party, which formed the meeting on this occasion, were tempted to start from Belford Hall by the treacherous cessation of the rain of the early morn, and were fortunate enough to reach Heathpool without encountering anything beyond threats; there, however, these threats became realities, and the rain descended in torrents. Having come, however, so far towards the place of meeting, forward was the word; and the party having reduced their nether garments as nearly as practicable to the Highland form, but retaining the more Southern weapon, the umbrella, despite of wind and rain, reached Dunsdale. Messrs. J. Turnbull and Boyd, who had already provided an ample supply of trout, met them on the way. Here the great desideratum was to get rid of the acquired moisture, in which the worthy Shepherd's wardrobe played its part by contributing to a change of costume. An excellent dinner, which had been furnished through Mr. Boyd, and a little more "mountain dew," this time internally applied, restored the feeling of comfort to all; and a pleasant drive home, during a warm and fine evening, closed the day.

The only plants gathered were *Galeopsis versicolor*, *Pinguicula vulgaris*, and *Narthecium ossifragum*.

A most interesting paper upon "Linton and its legends," intended for this meeting, has been contributed by Dr. Wilson.

This day, Gentlemen, terminates the nineteenth year of our Club's existence, an existence to which each year appears to add strength and value. Since our last anniversary we have had the pleasure of enrolling six additional names amongst the lovers of nature; and although it is not to be expected that in *all* should be found the same zeal for, and success in, investigating the wonders of creation which distinguish many of our number, still to no one, I feel convinced, will the time passed in these our cheerful gatherings be ever remembered with any other feelings than those of gratification, if not instruction.

The only painful part of my duty, on this occasion, is to ex-

press the deep regret (in which I am sure the Club will fully join with me) we must all feel for the lamentable and fatal accident by which, since our last anniversary, one of our members (George Darling, Esq., of Fowberry) has passed from amongst us; one, whose pen has added to the instructive pages of our Annals, and whose kind and energetic disposition will not soon pass from the remembrance of those acquainted with him.

In conclusion, I may perhaps be allowed to express a hope, that, while we are endeavouring to spread far and wide a taste for the pleasure we ourselves feel in investigating Nature's handy work, we may not at the same time be assisting to narrow the field of enjoyment for our successors. Many tribes both of birds and beasts, as well as plants, have already almost disappeared from the scene, and are become more the objects of curiosity than of observation. This has been effected, as far as the animals are concerned, not by naturalists, so much as by the general license granted to gamekeepers to destroy everything considered injurious to game. Here many of us might have much influence in checking the fatal persecution; and then, those amongst us who think this world wide enough for all, and delight in seeing the Creator's work (even though its pursuits be carnivorous) enjoying its brief existence, might more frequently be gratified by the sight of the hawk's aerial path, the wild cry of the raven, or the noiseless wing of the owl. With the loss of plants probably the improvement in agriculture has much to do; and were this the only cause of their disappearance, no room would be left for regret. In some cases however, where the discovery of an object of rarity conveys so much pleasure to the finder, the recollection that many an eye besides our own might, through our consideration, be equally gratified, would often stay the hand and spare the prize when not absolutely required.

With many apologies for the deficiencies of this Address, it only remains for me to thank you for the honour you have done me in placing me in the position to offer it.

An Account of Edin's Hall, in the Parish of Dunse, and County of Berwick. By GEORGE TURNBULL, of Abbey St. Bathans, W.S., F.R.S.E.

Introduction.—The ruins of Edin's Hall, lying within the district of our Society, exhibit a specimen of a peculiar kind of building, of which I believe no other example exists in the Anglo-Saxon part of Great Britain.

It is to be regretted exceedingly that this singular edifice has been allowed to fall into a state of almost entire decay. The dilapidation of it must have been commenced at a remote period, because, prior to the earliest accounts which we have of it, immense quantities of its materials had been rolled down the banks on which it stands, where they are still to be found. Until nearly the end, however, of the last century, the walls of it remained to the height of seven or eight feet, and the doorway was extant. About that period a large quantity of stones was carried away from it to form dikes for the adjoining fields, an operation which greatly impaired the distinctive features of the building. What remained of these features is fast disappearing, in consequence, as it is believed, of persons turning over and displacing the stones, in the hope of finding articles of value or curiosity among them. The ruins now exhibit, at first sight, nothing but a considerable quantity of loose stones heaped together in a large circle. On closer examination, however, the building and its peculiarities are still discernible among the rubbish. But such an examination will ere long prove fruitless, so rapidly is the work of destruction going on. The present therefore is the proper time for preparing, from actual inspection, an account of this interesting monument of antiquity. Nor is such a work unnecessary; for although there exist several descriptions of the ruins, yet all of them are more or less inaccurate in their details*. These accounts, too, are meagre and unsatisfactory on the important question as to the origin of the building, a question which admits of further illustration.

* See the Scots Magazine for 1764 (vol. xxvi. p. 431), Sir John Sinclair's Statistical Account of Scotland (parish of Dunse), Chalmers's Caledonia (vol. ii. p. 211), and Statistical Account published in 1841 (Berwickshire, Dunse). The notice of Edin's Hall given in the last of these publications was prepared by the author of the present paper, and on that account he is the more anxious to correct the inaccuracies it contains. For these inaccuracies the only apology he can plead is, that having been called on hurriedly to write the article, he was led to make some statements from memory and others from testimony, without verifying them himself on the spot. Such indirect evidence, however, ought always to be adopted with caution.

Desirous to supply the defects referred to, I have made the necessary examinations, measurements and inquiries, and I now submit the result to the Society.

Name.—The name given by the inhabitants of the district to the ruins about to be described is Eedins Ha'. In conformity with this their oral designation, the 'Scots Magazine,' which is the first publication that notices them, calls them Eedins Hall. In a MS. account of them by the late Mr. John Blackadder*, the name is written Idenshall; but it will be recollected that in Scotland the letter *I* was formerly and is yet often pronounced like *Ee*. On Armstrong's and Blackadder's maps of Berwickshire, and on that published by Messrs. Sharp, Greenwood and Fowler, the building is designated Wooden's Hall. The ordinary orthography of the name, however, is that adopted in the present paper.

Site.—Edin's Hall lies about a mile east from Abbey St. Bathans, on the hill called Cockburn Law, one of the range of the Lammermoors. This hill rises to the height of 1049 feet above the level of the sea †. From its summit an extensive prospect of the country towards the south is obtained, including the Merse and a considerable portion of the fertile plain watered by the Tweed and its tributaries, and bounded by the Cheviots at a distance of more than twenty miles, and the remoter hills of the county of Roxburgh. The sea is nearly hidden by part of the mountain range, which runs inland from St. Abb's Head, and by the high ground which stretches from that range by Coldingham, Ayton and Lamberton towards Berwick. Yet glimpses of it are got at two or three places where there are depressions in the land.

Edin's Hall itself is not so situated as to command any extensive prospect. Its site is on the northern side of Cockburn Law, where the horizon is much circumscribed by the adjoining hills, and where the view is confined to a few miles of the valley of the Whitadder, and of the adjoining valley of the Eye.

* Mr. John Blackadder, of Blanerne East-side, an accurate land measurer and surveyor. He was the author of the best map of the county of Berwick, prior to that of Messrs. Sharp and Co., published in 1826.

† The height of Cockburn Law above the sea is usually stated to be 912 feet; this however is incorrect. The following may be regarded as a near approximation to the true height:—

	feet.
Platform of Railway Station at Grant's House above the sea ..	366
St. Bathans Cottage above the said platform.....	109
Summit of Cockburn Law above that cottage	574

In all..... 1049

Of these measurements the first was ascertained by levels taken for the North British Railway, and the two last by several sets of barometrical observations.

Relatively to the hill on which it stands, *Edin's Hall* lies at about the sixth or seventh part of the distance from the base to the summit, that summit bearing south-west. The ground here is comparatively level, though uneven on the surface. The platform of the building, as it may be termed, is bounded on the south-west by the acclivity of the hill, on the north-west by the bank of a deep hollow, on the north-east by a steep bank washed by the river *Whitadder*, and on the east by a more gentle but irregular descent to the low ground. In perpendicular height the site is 254 feet above the channel of the river, and 384 feet below the top of the hill.

Masonry.—The building is constructed entirely of stone, without any other material. The kind of stone is whin (greywacke), obviously taken from the adjoining hill. The larger blocks, which mostly occur in the exterior side of the wall, measure between two and three feet in length, but there are many of greater size. None of the stones seem to have been dressed, but they retain their original irregular shapes. They are angular, as if they had been quarried or gathered before being rolled to any distance from the mass of which they are fragments. They have not been united by cement or even clay. They have however been very accurately adjusted in their places, their irregularities being fitted into one another or filled up with smaller stones. The face of the wall is regular and smooth, particularly on the outside of the building. The whole presents a very perfect specimen of what is called dry-stone masonry. (Plate I.)

Form.—The form of the edifice is circular*. The entire circle remains, except for a short space on the south, where the building is now reduced to the level of the surrounding debris. The outward face of the wall runs nearly, though not correctly, in a circle, but that of the interior departs considerably from this figure. One may suppose that before the building was erected the outer circle was traced upon the uneven surface of the ground, and that the line within was left to the eye of the workmen. The following are the lengths of the exterior diameters nearly:—

From N. to S.	92 $\frac{1}{2}$ feet.
From E. to W.	90 "
From S.E. to N.W.	92 $\frac{1}{2}$ "
From S.W. to N.E.	92 "

* See Plan (Plates I. and II.). In the account of the building given in the 'Scots Magazine' it is said, "The form of it consists of three concentric circles, 6 or 7 feet distant from one another, and the diameter of the innermost is about 20 feet." But there is not at present any vestige of three circles, nor are they delineated on a sketch of the building made by Mr. Blackadder in or about the year 1793.

Wall.—The thickness of the wall varies at different places from 15 feet 3 inches to 19 feet 2 inches. There is nothing to show that a bench or narrow terrace ever existed round the bottom of the wall in the interior. The portions of the wall still remaining are quite perpendicular.

Doorway.—The doorway and passage which led through the wall from without to the area within, lay on the east side of the building. This passage may still be partially traced, but not so as to admit of admeasurement in all its dimensions. It appears however that the length of the passage was 17 feet. The external entrance of it was entire about the year 1793, and is said to have been low and narrow, and covered with very large stones. Indeed some large stones still lie at this part of the ruin. At the place where the inner doorway of the passage must have existed there are two large stones, 5 feet 4 inches apart, which may have been its corners. No doubt a door of this width could not, like the one on the outside, be said to be narrow; but if the passage between them went through a chamber in the interior of the wall, as there are some reasons to believe, it may have been made wider at one place than the other*.

Cells.—In the heart of the walls open spaces formerly existed. These spaces are now filled up with rubbish, but the sides of them are more or less apparent in most parts of the circle. In two places we can trace the entire figures of distinct chambers. These form long narrow apartments, of which the ends are semicircular and the sides partake of the curvature of the walls. In breadth they are both about 7 feet, and in length they are respectively about 33 and 23 feet. One of them seems to have been divided by a partition with a doorway in it. There are indications of an entrance to each of these cells from the central area of about 3 feet in width. Other two cells lie on each side of the entrance passage, both of the same breadth as the rest. It does not appear whether they had any direct communication with that passage by doorways, or whether they were not entirely open to it, forming in that case one large chamber with the passage going through the middle of it. The other vacant spaces are all of the width of 7 feet, except one

* "There was a low narrow door covered with immense large stones on the east side that led into the interior of the building, all of which have been long ago removed for enclosing the adjoining fields." (Blackadder's MS. 1834.)

Chalmers in his description of the building says that it had "two entries, one on the south, and the other at no great distance on the south-west." But in making this statement he has misconceived the authority which he has referred to. That authority is the 'Scots Magazine,' and the entries there spoken of as on the south and south-west are expressly said to be those "which run over the trenches."

whose sides converge to 2 feet 6 inches at one of its ends. Like those that are more entire, they may have had entrances from the inner court, but these entrances are not at present discernible. It is said that these openings were covered, but this fact cannot be ascertained in the present dilapidated state of the building. Neither can it be ascertained whether any of them were used as staircases or inclined ascents to the top. In the earlier accounts they are all described as separate cells*.

Windows.—If windows ever existed in the building, no indications of them now appear, nor indeed could reasonably be looked for, in consequence of the very inconsiderable height of the remains of the walls. In none of the accounts of it is any mention of windows made.

Height.—It is impossible to form any conjecture as to the original height of the structure, but it must have been considerable, as may be inferred from the quantity of materials rolled down the bank and carried away, and from what still lies within and around the building.

Roof.—It is very improbable that an edifice of such magnitude, and erected by rude artists, could have had a roof which covered the whole of it.

Such was the principal building, or what may be called the Keep of *Edin's Hall*†.

Subordinate buildings.—Eastward from this keep the ground is marked by the foundations of other buildings. These foundations are now mostly overgrown with turf, and exhibit the appearance of low mounds, having the larger stones protruding. On a careful examination of these mounds, the foundations of four circular buildings can be traced, and there may have been others; but this circumstance is uncertain, the inequalities of the ground not being sufficiently unequivocal to establish it. Of these subordinate buildings, the largest, and now the most distinct in its remains, is situated at the distance of about 75 feet south-east from the Hall. Its diameter outside is 62 feet, and

* In the 'Scots Magazine' the cells are described thus:—"In the heart of the walls there are several square holes, which seem to go perpendicular downwards." In Mr. Blackadder's MS. it is said, that at the time he surveyed the ruins (about 1793), "the cells were quite distinct, and apparently had been closed at the top with large stones in the form of an arch." It is impossible, however, to suppose that the builders of a structure in which no cement was used understood the art of forming an arch. It is more probable that the roofs of the cells, if they had any, were constructed of large stones projecting the one over the other (a mode of construction called corbelling by masons). If this were the case, when the building became ruinous, these stones falling against and resting on each other would produce the appearance of a rude arch.

† It is extremely probable, that by carefully removing the rubbish without disturbing the stones built on one another, the entire ground plan may be recovered.

the thickness of the wall is 7 feet. This wall seems to have contained no chambers or galleries. The next in importance of the circular edifices measures 35 feet in external diameter, having its wall 6 feet thick. Other two lie near what was probably the original entrance across the ditches and ramparts, to be afterwards noticed, and seem each to have been about 30 feet in external diameter. The other foundations run in lines nearly straight, and meet at several points. Whether any of them formed rectangular houses is uncertain, because the four sides of such a house are nowhere to be seen. It may safely, however, be assumed that most of them were merely the division-walls of open spaces, these spaces being of considerable size. Some of these walls abut upon the towers, as if the latter had been connected with court-yards.

Fortifications.—The buildings have been protected by rude fortifications. The keep is surrounded, or nearly so, by a wall, enclosing an area of a very irregular shape, measuring from north to south about 210 feet, and from east to west about 180 feet. This wall joins the principal subordinate building already described; on the east, north and west it is composed of stone, the foundations measuring at different places $6\frac{1}{2}$ and $7\frac{1}{2}$ feet in thickness; on the south towards the hill, this wall is composed of earth thrown up into the form of a high mound, having a trench on its outer side. Beyond this defence, sweeping round all the buildings, where the ground naturally affords the easiest access to them (that is to say, on the east, south and south-west), are two mounds or ramparts of earth, having a trench or dry ditch on the outer side, and a similar ditch between them. These ramparts and trenches vary in magnitude at different places, being greatest where they face the hill. At one place the ditch, notwithstanding the effect of time in filling it up, is still 13 feet deep, measured from the level of the top of the rampart. On the west and north, where the banks above the river form a natural defence, a single trench, comparatively shallow, runs behind the wall which encloses the keep, and is thence continued with the wall also till it meets the other works. From the edge of the outer ditch, on the south-western side of the fortress, a wall without trenches, of about 180 yards in length, runs down the hollow on the west until it reaches the top of a small ravine descending to the river. The entrance to the ground enclosed by these works seems to have been on the east, as indicated by the mounds there. At different places, particularly on the east and west, the ramparts are now nearly levelled, and the ditches filled up to the surface of the adjoining ground. Where the ramparts still remain there are two openings through them, the one on the south and the other on the south-west. These, though not apparently of mo-

dern construction, do not seem to have been coæval with the works themselves, but were probably formed when these works had become no longer requisite as means of defence.

Well.—There is no spring within the fort. As it is not likely, however, that the inhabitants would choose to rely at all times on obtaining water from without, it is probable that this necessary article was procured by means of a pit-well; but of such a well no marks can be found. It must long ago have been filled up or covered over.

Neighbouring camp.—It may be mentioned that the summit of the hill on which Edin's Hall stands is surrounded by trenches. These, like the trenches at the Hall, are adapted to the nature of the ground; that is to say, where it is steepest there is one ditch only, but where it is easier of access there are two and three. They must either have originally been shallow, or are now in a great measure filled up. In this respect the camp on Cockburn Law is unlike what are understood to be Danish camps in the same district, these having their trenches much deeper, and being altogether in better preservation. This circumstance may perhaps lead to the inference, that this camp is not of Danish but of Saxon origin. In the middle of the entrenched ground a shaft has been sunk, which is lined at the mouth, if not deeper, with building of uncemented stone, formed not into a circle but an oblong. It was no doubt a well, but is now nearly filled with stones.

Similar buildings.—Although no remains similar to those of the Keep of Edin's Hall are to be found in England or in the Lowlands of Scotland, there are numerous examples in the Highlands, in Orkney and Zetland, in the Hebrides and in Ireland*. In Scotland they are called Burghs by the Saxon inhabitants, and Duns by the Celtic. There are distinctions, however, between these burghs or duns and Edin's Hall. In size they are less, the openings within the walls are smaller, being in general from two to three feet only in width instead of seven, and these openings are of a different construction, being commonly continuous passages all round the building, and not separate chambers. In the very remarkable ruin near Londonderry, called the Grianan of Aileach (which was the residence of Irish kings till the twelfth century), the galleries are two in number, entering from the inner court, and occupying each nearly a quarter of the circle†.

Origin of such buildings.—Such buildings must have been

* See Gordon's *Itinerarium Septentrionale*, p. 166; Pennant's *Tour*; Sir Walter Scott's *Notes on the Castle of Coningsburgh* in *Ivanhoe*, and on the *Castle of Moussa* in his *Journal of a Voyage round Scotland*, preserved in his *Life* by Lockhart.

† Ordnance Survey of Londonderry.

erected by a people very little advanced in the arts. It is probable that they originated in a wall raised as a screen around the fire of a family. In process of time, in order to afford protection from enemies, the wall would be increased in thickness and height. When it reached so great a width as twelve or fifteen feet, it would be natural to construct apartments within it. The more massive of such structures would be appropriated to chiefs; and while they and their immediate dependents would occupy the great stronghold, outhouses would be built for the rest of their followers and for horses, cattle and other moveable property. All these would of course be surrounded by trenches and ramparts. Thus may be supposed to have arisen such works as *Edin's Hall*.

Residences of this kind are little suited to our modern ideas of comfort; yet it is not to be supposed that their inmates were at all times exposed to the open sky. Sheds would probably be erected within the enclosure, and if carried round the wall would be open only towards the fire in the midst. Entering from these sheds, the apartments in the wall would afford places for retirement, rest and security*.

It is curious to remark analogies between these and the houses of more civilized nations. In the villas of the ancient Romans, the principal hall (Atrium) may be described as an open court surrounded by sheds, from which apartments entered; but as a fire was not required, a tank (Impluvium) was formed in the midst, which received the rain-water from the roof.

The hovels of the inhabitants of northern climates, who have made little progress in civilization, are derived from the same primary model. A wall surrounds a fire, and a roof is constructed on this wall, with a hole in the centre of it for the egress of the smoke.

Origin of Edin's Hall.—No historical notice has been found referring directly to *Edin's Hall*. Its origin and purpose, therefore, can be inferred only from circumstances. On this subject many conjectures have been formed. Among others, are the hypotheses that the building was a Druidical temple—a temple of Woden, a temple of the god Terminus, a station for an army of observation against the Danes, and a storehouse of provisions for a chain of camps on the Lammermoors, formed to repel the English and other enemies. Most of these conjectures are evidently groundless, and it is needless to discuss any of them, if

* If, as is said to have been the case in one of the descriptions of it, there were at any time walls within the area of *Edin's Hall* concentric with the great building, these may have been intended as supports for the roofs of sheds. Of course these walls would have openings through them towards the centre.

the real purpose of the building can be shown to be different from them all.

Is a palace of Edwin.—The most probable account of the origin of *Edin's Hall* is, that it was erected as a palace for Edwin king of Northumbria, who reigned between the years 617 and 633. The evidence in favour of this proposition shall be detailed.

Lies within his kingdom.—It is now generally admitted by historians that the south-eastern part of Scotland, that is, the district between the Firth of Forth and the Tweed, was included in the ancient kingdom of Northumbria*. Hence *Edin's Hall* was situated within that kingdom. Indeed, an ancient historian states that the country watered by the Whitadder, the very river on whose banks the hall of Edwin stood, formed part of the bishopric of Lindisfarne when it was presided over by the celebrated St. Cuthbert, and which was then situated within the territory of the Saxons†. St. Cuthbert flourished only about fifty years after Edwin.

Bears his name.—While *Edin's Hall* was thus situated within the territory subject to Edwin, it further bears his name. In the compound word *Edinshall*, *Edin* is evidently used as a

* The authority for this statement may be shortly mentioned. Bede says that the monastery of Abercurnig lay two miles distant from the Roman wall which joined the Firths of Clyde and Forth (Beda, Eccles. Hist. B. i. c. 12). And in another place the same author expressly states that the monastery of Abercurnig was "seated in the country of the English, but close by the arm of the sea which parts the lands of the English and the Scots"—"posito in regione Anglorum, sed in vicinia freti quod Anglorum terras Pictorumque disternit" (Beda, B. iv. c. 26). Hence the country of the English or Northumbria was bounded by the Firth of Forth. The place called Abercurnig by Bede is the modern Abercorn.

† "Hic est Lindisfarnensis terræ terminus: a fluvio Tweoda usque ad Pharnamuthe, (Warrenmouth?) et inde superius usque ad illum locum ubi hæc aqua quæ vocatur Pharned (Warren?) oritur juxta montem Hybburndune, (Hebburnbell?) et ab illo monte usque ad fluvium qui vocatur Bromie, (Bremish?) et inde usque ad fluvium qui vocatur Till, et tota terra quæ jacet ex utraque parte ipsius fluminis Bromie usque ad illum locum ubi oritur; et illa terra ultra Tweoda ab illo loco ubi oritur fluvius Edræ (Whitadder) ab aquilone usque ad illum locum ubi cadit in Tweoda, et tota terra quæ jacet inter istum fluvium Edræ et alterum fluvium qui vocatur Leder (Leader) versus occidentem, et tota terra quæ jacet ex orientali parte istius aquæ quæ vocatur Leder usque ad illum locum ubi cadit in fluvium Tweoda versus austram; et tota terra quæ pertinet ad monasterium Sancti Balthere quod vocatur Tinningaham a Lombermore (Lammermoor) usque ad Escemuthe (Eskmouth, Inveresk)." (Twysden's Scriptores Decem—Historia de Sancto Cuthberto, col. 68.) The river called Edra in this quotation can be no other than that which flows into the Tweed near Paxton. Hence are derived the names of places on its banks—Edratun (Edrington) and Edra-ham (Edrom). Hence also its principal tributary, which is of a dark colour, being impregnated with moss, is called Black-edra (Blackadder), and hence too, in order to contradistinguish this branch from the main stream, the latter is called White-edra (Whitadder).

proper name in the possessive case. Edinshall therefore means the hall of Edin. Who then was Edin? He must either have been the god Woden or the king Edwin, for to none else has the name ever been attributed. But all the derivatives from Woden are spelled with the letter W, as Wanborough, Woodnesborough, Wonston, and eleven others mentioned by Kemble*, and the word Edin wants this characteristic. On the other hand, Edin is the ordinary abbreviation of Edwin. Thus, of the two derivations, that from Edwin is the more probable.

The affix "Hall" strengthens the inference. It is an Anglo-Saxon word†, and therefore the building, if erected by Edwin, may have borne its present appellation from the first. If it had been called by any name of Celtic or Roman origin, the inference that it is a Saxon work would have been more than doubtful.

Exhibits the architecture of his time.—We have found no contemporary account of the architecture of the Anglo-Saxons in the time of King Edwin, insofar at least as regards buildings of stone. We may infer, however, from incidental notices and other circumstances, that it was similar to that exemplified in Edin's Hall. (1.) The art of building with mortar or cement was then unknown in Northumbria. "The truth is that the Anglo-Saxons, at their arrival in this island, were almost totally ignorant of this art, and, like all the other nations of Germany, had been accustomed to live in wretched hovels built of wood or earth and covered with straw or the branches of trees. Nor did they much improve in the knowledge of architecture for two hundred years after their arrival‡." The first stone buildings in this district in which cement was used were the Cathedral of Hexham and the Monastery of Weremouth, and these were constructed by masons brought for the purpose from Rome and France towards the end of the seventh century. Hence any edifice of stone, erected during the reign of Edwin, must, like Edin's Hall, have wanted mortar. (2.) The stone buildings of the tribes on the continent, who were neighbours to the Saxons and of the same race, were probably of the same kind as Edin's Hall. This inference arises from the similarity between this ruin and the Burghs or Duns

* Kemble's Saxons in England, vol. . p. 344.

† Johnson's Dictionary. The following instances occur in the Saxon Chronicle of places called by the name of Hall. "Pincan heal," Pencanshall, now Finkley in Durham. "Rihala," Roughhall, now Ryall in Rutlandshire. (Henry's History, vol. ii. p. 609.) The word Hall occurs in the following passage in the Saxon Laws:—"If a man fight or draw weapon in the King's Hall and be taken in the act, he shall lie at the King's mercy to slay or pardon him." (Kemble's Saxons, vol. ii. p. 50.)

‡ Henry's Hist. vol. ii. p. 391.

of the Highlands and islands of Scotland. These are acknowledged to have been the workmanship of the ancient Scandinavians, whose place of settlement in Denmark adjoined that of the Saxons in Jutland, and who were members of the same Teutonic race. It is reasonable to assume therefore that both used the same style of architecture and masonry. If the ancient Danes and Norwegians built edifices of uncemented stone, so probably did the continental Saxons, who afterwards settled in England.

Agrees with accounts of sites.—The site of Edin's Hall agrees with what appears, in most instances, to have been that of the residences of the first Saxon kings of England. These residences were situated not so frequently in towns as in the country. Bede calls them "*Regiæ villæ*," royal vills, commonly translated royal country-seats. These are distinguished by him from "*Urbes*," cities or towns*. Kemble, referring generally to the situation chosen for the fortresses of kings and chiefs, describes it thus:—"A gentle hill crowned with a slight earth-work or even a stout hedge, and capacious enough to receive all who require protection†." Such is nearly a description of the site of Edin's Hall. And it may be remarked that Adgefrin, now Yeavinger, on the river Glen, noted as the place where three of Edwin's children and a multitude of his followers were baptized, is situated in a district not dissimilar to that of Edin's Hall. Near to both places are considerable eminences (*viz.* Cockburn Law and Yeavinger Bell) commanding prospects of extensive districts of country.

Illustrates a passage in Bede.—There is an interesting passage in the '*Ecclesiastical History*' of the Venerable Bede, which throws light on the subject of this memoir, and which is itself illustrated by it.

We are told that King Edwin, though a pagan, espoused a christian princess, named Ethelberga, who was daughter to the king of Kent. By her influence, and by the preaching of the missionary Paulinus, who had accompanied her to Northumbria, Edwin was persuaded to embrace her faith. He resolved, however, to delay the public acknowledgement of his conversion until he had consulted the great council of his kingdom. He assembled therefore the Witenagemote, and asked the members what they thought of the new doctrine and worship. One of them made the following reply, which is described by Kemble as the earliest specimen of English parliamentary eloquence:—"It appears to me, O king, that man's present life on earth is

* Bede, *Eccl. Hist.* B. iii. c. 17.

† Kemble's *Saxons*, i. 301.

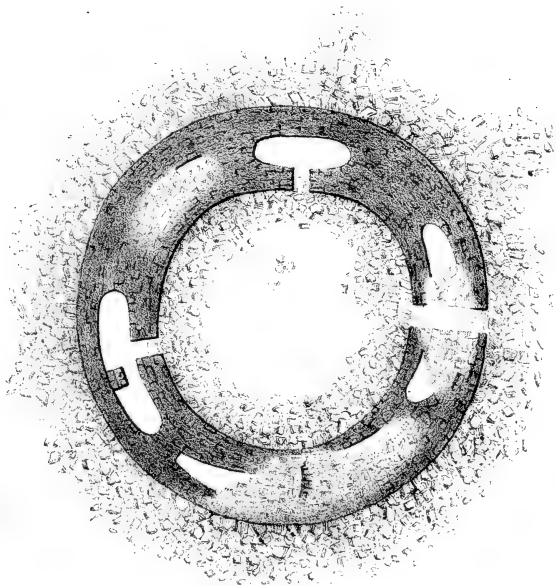
such, in comparison of that time which is unknown to us, as if, whilst thou, with thy generals and ministers, art sitting at supper, in the season of winter, having a good fire kindled in the midst, and a warm place for the repast obtained, but storms of rain or snow raging everywhere without, a sparrow were to come in and fly rapidly through the house, entering by one opening and immediately going out by another. So long as it remains within, it is not affected by the storm; but the short space of serenity being past, it immediately returns into the wintry air whence it came and vanishes from thy sight. So this life of man appears for a moment; but what is to follow or what preceded it, we are entirely ignorant of. Therefore, if this new doctrine should bring any thing more certain, it seems to deserve to be followed*." Other members spoke to the same effect; and after an oration from Paulinus, even the pagan high priest Coiffi expressed his conviction, and then led the way in destroying the temples and idols.

The illustration given by the ancient Saxon counsellor could hardly have occurred to a modern orator. Accustomed as we are to closed apartments, it would have been inappropriate and far-fetched to have spoken of a fire in the midst of a banqueting hall, and the entrance and flight of a sparrow through it. But these are circumstances very likely to have occurred in a house having no roof, or only a partial one.

The circumstances now mentioned render it, we think, more than probable that *Edin's Hall* was really a palace of Edwin, King of Northumbria.

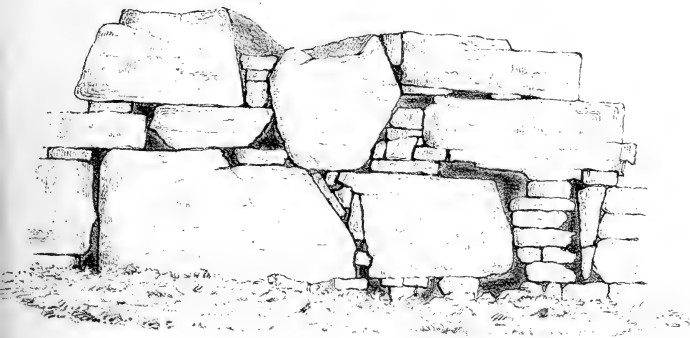
Edinburgh.—The affinity of the name of this building to that of the metropolis of Scotland cannot but be remarked. Indeed it is now generally held that Edwin was the founder of that city. If this be true, he probably erected there a Burgh or Dun similar to *Edin's Hall*. Accordingly the place is called *Edinburgh* (*Edwin's Burgh*) in Saxon, and *Dunedin* in Gaelic.

* "Talis, inquires, mihi videtur, Rex, vita hominum præsens in terris, ad comparationem ejus quod nobis incertum est temporis, quale, cum te residente ad cœnam cum ducibus et ministris tuis tempore brumali, accenso quidem foco in medio et calido effecto cœnaculo, furentibus autem foris per omnia turbinibus hiemalium pluviarum vel nivium, adveniēnsque unus passerum domum citissime pervolarit, qui cum per unum ostium ingrediens mox per aliud exierit; ipso quidem tempore quo intus est hiemis tempestate non tangitur, sed tamen minimo spatio serenitatis ad momentum excursu, mox de hieme in hiemem regrediens tuis oculis elabitur." (Beda, *Eccles. Hist. lib. ii. c. 13.*) We have translated "ostium" not by the word "door," but by "opening," because it cannot be assumed that in a period of constant warfare the Saxon chiefs would hold entertainments with open doors amid a hostile population.



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Scale of Feet

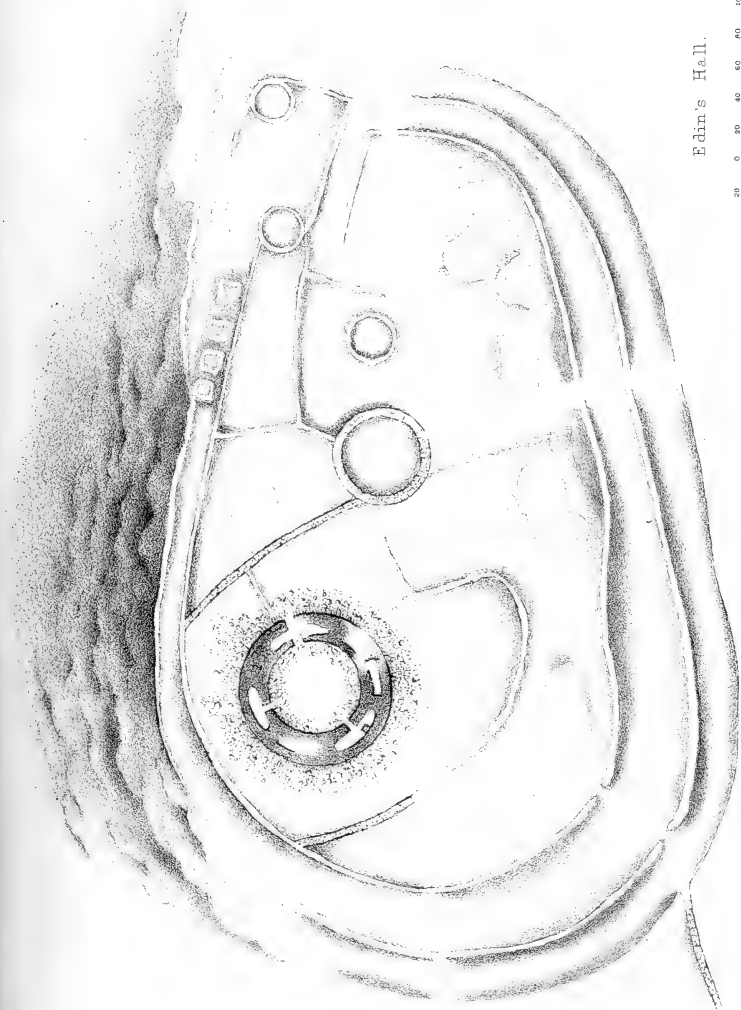
Principal Building of Edin's Hall.



1 0 1 2
Scale of Feet.

Masonry of Edin's Hall.





Edin's Hall.

0 20 40 60 80 100
Scale of Feet



Linton and its Legends. By CHARLES WILSON, M.D.

ON approaching, from the northward, the narrow outlet through which the mountain stream of the Kail issues from the range of the Cheviots, to meander through the more open plain which expands itself at their base, we come suddenly, by a short and abrupt descent, on the romantic site of the little church of Linton.

The prospect from the brow of the height which overhangs the church is one of quiet and simple beauty. Its leading features are the stately woods surrounding the mansion-house of Clifton; the church itself, with the remarkable grassy knoll upon which it is elevated; the level expanse tracked by the windings of the little river; the village of Morbottle perched on an eminence beyond it; and the heights of the Cheviots, ascending in gradations till their loftier summits bound the distance. A farm-hamlet, or a group of cottages, strewed here and there among the corn-fields, or on the green slopes, denotes the rural character of the population; who live here peacefully in that seclusion which is not obscurity, surrounded by the tokens of their skilful industry; and virtuously in the aggregate, or with faults which rarely pass beyond an occasional excess at the village tavern, or a breach of the game-laws. It requires a closer inspection to point out to us the roof of the manse, peering from behind its screen of foliage; the humble tomb-stones scattered over the church knoll; and the lane, overshadowed by elm and ash-tree, that leads, with a solemnizing influence, to the spot where, for long centuries, the path to eternity has been marked forth from among the mouldering relics of time.

There are few modern associations, connected with the locality or its inhabitants, which are sufficiently prominent to impress themselves upon the memory: though he would be but a cold observer who could not look with pleasure on the small pastoral estate of Wideopen, which is seen rising eastward from the Kail, and which was once the inheritance of the poet Thomson, who is said to have here composed his *Winter*, and to have gathered many of the materials for its scenes and incidents, and descriptions, from the ordinary experience of life among the "hopes and scaurs" of the surrounding hills.

And yet there is no locality in this district, on which the history of the more remote past is written with deeper traces, than on that now before us. The designations of many of the separate elevations of the range of the Cheviots reveal to us the ancient occupation of the country by a tribe of the Celts; while the names of the hamlets, as Tofts, Morbottle, Caverton (A.-S. *Ceafertun*, a hall, an inclosure), Otterburn, Whitton, Linton

itself, and many others, tell plainly of the later immigration of the Anglo-Saxon race; and speak also, though with less distinctness, of a more limited and less enduring settlement on the part of the Frisians and Danes. The condition of a still later period portrays itself in the ruined towers of Cessford, Whitton, and Corbet, and in the recollection of others now levelled with the ground; all unhappily teeming with traditions of that feud, bloodshed and rapine, which were here the prevailing characteristics of the "good old times." It is, however, with the legends and traditions immediately relating to the church of Linton that the following observations will chiefly connect themselves: and it is hoped it may be shown that these traditions are invested with a degree of real interest, which certainly may be easily surpassed elsewhere, but which has at least no parallel among the similar records of the neighbouring rural fanes. Such subjects of inquiry have frequently been suggested as coming properly within the limits of the Club's researches; and I have, therefore, no apology to offer, unless for defects of execution, in laying before the scholar and the antiquary, or the observer of mankind, these easy illustrations, gathered almost at random from among severer studies, of the early evolvments of our dawning civilization, with its crude yet bold imaginations, simple in the infancy of culture as in the infancy of age.

Let us then descend from the eminence, the prospect from which, with its wide associations, we have just faintly characterized; and passing by, in the meantime, the sheltered churchyard lane, let us wind our way towards the closely adjacent mill of Linton, whose once picturesque aspect has recently receded before the progress of improvement; and here, seeking the stile leading into the little meadow on the right, we at once find ourselves beside the low, irregular mound, which hides, with its covering of grove and verdure, all that now remains of the ancient stronghold of the barons of Linton. The first notice of Linton which has occurred to my observation dates towards the middle of the twelfth century; when Earl Henry, the eldest son of David I., bestowed it as a manor upon Richard Cumyn, the earliest of that powerful race who obtained possessions in Scotland. It appears, however, to have remained only a short time in the tenure of the Cumyns, for we find that in 1174 it was transferred to John *Somervill*, a baron of Norman descent, and a recent settler from England. This baron is said to have reared the tower of Linton; and, dying at a ripe age, was buried in the *quier* of the adjoining church*. His descendants appear

* 'Memorie of the Somervills,' from the MS. of James, eleventh Lord Somerville, 1679. The facts are there stated to have been gleaned "mostly in ther oune charters and those of ther vassals."

to have made the fortalice their usual residence till about the year 1320, when Carnwath, a still more ancient possession, became their principal seat. Under pretence of forfeiture of the family, who had faithfully preserved their allegiance to the Scottish monarch, the lands of *Lynton* were seized, circiter 1348, by Edward III., and conferred upon Richard of Kirkbride (*V. Rot. Scotiæ*). The more supple courtier did not long profit, however, by his subserviency; for the mock forfeiture was annulled by David II., who, on his return from captivity, re-established the Somervilles in their possessions, granting them the necessary confirmation of all previous charters.

For nearly two and a half centuries, the barons, with rare exceptions, continued to be buried in the choir of Linton Church; and as late as 1426, Thomas Lord Somerville appears to have "caused repair the church and queir of Lintoune, and the tower of Lintoune." But they were gradually clinging less closely to the domain and burial-place of their fathers: and before the close of the fifteenth century it was wholly alienated from their race, and became the property of the Kers, in the person of James Ker, the second son of Andrew Ker of Auldtounburn and Cessford; unless, indeed, that the feudal superiority seems still to have been retained, as a sole vestige of the ancient possession.

Linton continued in the possession of the Kers for about two centuries, during the earlier part of which the events in its history were simply those which related to the position of its owners, as the vassals of a powerful sept, struggling among the most desperate in the marauding contests of the times. In 1502, James Ker of *Lintoune* appears characteristically as a surety for certain border thieves*. On the 20th July, 1522, the tower was burned to the "bare stane walles" by the English, when its garrison of sixteen men was saved by the lucky expedient of placing themselves between the battlements and a stone gable on the roof, which protected them from the flames. In 1523, its destruction was completed by Surrey, who razed it to the ground. In 1528, George Ker of *Lyntoune* was "amerciaded for not appearing to underly the law," his undignified offence being that of chasing and wounding the "*parkit deir*" of Cokburne of Ormistoun†. About the termination of the seventeenth century the barony came, by purchase, into the possession of the Pringles of Clifton, and is now held by Mr. Elliot as heir of entail of that family. Not a stone from the battlements of the fortalice lies now above the surface to give token of its former existence. Its last relic was an iron door, which was dug out, about thirty years ago, from the mound concealing the shattered foundations. The traces of these denote the fabric to

* Pitcairn's Criminal Trials, vol. i. p. 32.

† Ibid. p. 140.

have been of considerable extent; and the local tradition states it to have been defended by a moat, the water for which was supplied by a tiny rivulet, still to be seen passing along the eastern side of the road.

A few paces westward of the site of the castle, rises the more elevated knoll which has already been mentioned as sustaining the church. The original church of Linton is of very remote, though uncertain, antiquity, and there is some reason to believe that it may have first risen on the ruins of what had been previously a heathen temple. The religious structures of our Teutonic forefathers, before the introduction of Christianity, were rarely, if ever, regular edifices, but consisted merely of some conspicuous eminence, placed either in the forests or in some sheltered grassy meadow, and surrounded by a simple stockade, a circle of ash-trees, or a ring of heaped stones. Bede, in his 'Church History,' describes the "*aras et fana idolorum, cum septis quibus sunt circumdata:*" and we have an additional proof of the usual slightness of their fabric in the fact that, as well in this country as in Germany and Scandinavia, there is an almost total absence of distinct remains of buildings which had been evidently so appropriated. Partly, in all likelihood, from a lingering regard, in the spirit of the common people, for the inherent sanctity of these places, and partly from a desire, in the leading apostles of the new and better faith, to proclaim in the most indisputable manner the extinction of the old idolatry, we find that at this early period the frail sanctuary of paganism was frequently made to give way to the more solid structure of the Christian church; and that the rites of a purer religion superseded, not only in the hearts of the converts, but at the very altars of superstition, the gross and blood-stained worship which had been newly abolished. Besides, the temple of the early Teutonic races was also ordinarily the "*Thing*" (Folk-mote), or place for the assemblies of the people, whether for the promulgation of laws or the distribution of justice*. Here too were celebrated their principal festivals†; and in the vicinity was usually the residence of their chief. Thus all things combined to knit the locality with the feelings and affections of the people; and it was but following the course of nature and of habit, when the Angle turned to worship the one God, on the spot which had been recently dedicated as the shrine of Woden or of Thor.

Paganism, as manifested in the fanciful mythology of the North, may be considered as having been predominantly established in this district for the space of nearly a century; dating from the

* Allen's *Haandbog i Fædrelandets Historie (Om Nordens ældste Indvaanere)*.

† Grimm, *Deutsche Mythologie*, p. 77.

period when Ida, the founder of Bamborough, had made a first attempt at permanent conquest. It was towards the middle of the seventh century that Paulinus succeeded in introducing Christianity; but there were still struggles against the new doctrines, and it was not till the close of this century that they could be regarded as having been generally adopted. A century and a half later, however, there was again a fresh ingression of paganism under the Danes; though before the termination of the ninth century the Danish ruler had himself embraced Christianity, and the struggle finally ceased. Thus, at the time when Richard Cumyn became possessor of the manor of Linton, or shortly before the middle of the twelfth century, the country had been fully christianized for an extended series of years: yet the remembrance of the past conflicts would doubtless still dwell freshly in the memories of the people, who had been taught, by long experience, to look upon heathenism as at once their spiritual and their temporal enemy, and who doted too fondly on their traditions to allow them easily to pass into oblivion.

But there is little probability that any portion of the actually existing fabric of the church of Linton can date from a more remote period than that of Richard Cumyn, though there seems reason to believe that its foundation may have been really the act of that individual, and thus nearly contemporary with that of the magnificent abbey of Kelso, of which it became afterwards an appendage. The grateful Cumyn, with a just regard for the memory of his benefactor, bestows it, under its then name of *Lyntunruderich*, upon the church "Sancte Marie de Kelchou, et monachis ibidem deo servientibus;" along with half a ploughgate of land in the villa of *Lyntunruderich*, "pro animâ Henrici comitis domini mei, et pro animâ Johannis filii mei," whose bodies were interred in the abbey to which he makes the benefaction. He stipulates also piously for his own soul, and for the souls of his predecessors and successors; and adds the curious, though not rare, trait of the superstition of the times, that the abbot and convent had received him, and Hextilda his wife, and their children, into their fraternity, and had conferred upon them the benefits of the church*. As Earl Henry died in 1152, and as the grant of Cumyn is specified in the celebrated charter of Malcolm IV., to which is assigned the date of 1159, as "*ecclesiam de lintonrutherich, ex donatione Ricardi Cumin,*" we touch very closely upon the precise period of this interesting and early notice of the church of Linton. In a Confirmation by Herbert, Bishop of Glasgow (1160-64), we find it mentioned as the church of *Linton Ruderich*, while in the rubric of the same deed it is styled *Lyntunruderyc*. In the Charter of William the Lion,

* Liber S. Marie de Calchou, N. 274.

which must have been dated prior to the year 1214, it appears as *Lyntonrotherick*; and in a later Confirmation by Bishop Walter (1232) it is *Lintonrotheric*. The *Rotulus Redituum Monasterii de Kalkow* (c. 1290) values the rectory of *Lynton rothrig* at twenty marks yearly. In the more recent "Rentall of the Abbacie, 1597," the name occurs simply as *lyntowne*; the affix *ruderic*, or *rotheric*, having ceased to be employed.

It will be less easy to trace the order of the changes in the fabric of the church than that of the orthography of its name. Not a single feature remains in its architecture sufficiently distinct to enable us to judge with precision as to the style in which it has been originally constructed. No massive pier, nor circular arch, nor deeply recessed doorway, nor chevron moulding presents itself to denote the Saxon or early Norman character of the period at which we have supposed it to have been founded; or, more probably, in which it was re-edified. Still the character of the basement, which can be traced at intervals round nearly the whole of the exterior of the building; and that of one or two of the lower courses of its masonry, solid, regular and carefully executed, which bear distinct marks of antiquity, and are undoubtedly remains of the original structure; point to an age when the devotion of our ancestors gave to church architecture a strength and a dignity which, at least in such obscure positions, it has never attained in our more calculating times. Any sacred edifice, constructed even in the thirteenth century, or at any later period, with masonry thus finished in execution, would hardly have failed to have presented some of the other attributes of the then prevailing ecclesiastical style in its more perfect forms; and, in particular, the essential feature of the buttress could scarcely have been omitted, the foundations of which might still have been traced in the basement of the structure. But the buttress formed no part of the early Norman style, which prevailed up to the close of the twelfth century; and it becomes important to note that no trace of the buttress can be perceived in the ground plan of Linton. On the other hand, we have nowhere evidence, from other subsisting remains, that the art of the builder had acquired any marked perfection in this country prior to the era of David, when the munificence of that monarch raised it at once to a distinguished position. On grounds so slight as these, and which are all that appear attainable, I am inclined to fix the first date of the existing structure at Linton at a period near that of the death of Earl Henry; and to attribute its erection to the liberality of Cumyn, who, in bestowing it on the monks of Kelso, seems to have desired to have rendered it worthy of its destination, and of the grateful piety of his object.

The ground plan of the building, as it now exists, presents an outline of the body of the church, measuring about 48 by 26 feet; and a choir, or chancel, the dimensions of which appear to have been about 21 feet in breadth, by 12 or more in depth. At the north-east angle of the main building, and in the adjoining part of the choir, it seems possible to distinguish the repairs executed by Lord Somerville in 1426, when the original structure was already of considerable antiquity; the masonry being here, to a considerable height in the wall, of equally skilful execution with the basement courses, and in still more perfect preservation. On recently making some slight excavations in the close vicinity of this portion, two oblong stones were discovered, having an enriched fillet running along their centres, and of such a shape as to render it probable that they had formed part of the broken lid of a stone coffin. From the character of the fillet, this coffin has probably been as old as the beginning of the fifteenth century. With one remaining exception, the rest of the exterior of the building is now merely a poor and characterless re-fabrication from the old materials, executed, I believe, chiefly within the last half-century. The interior is wholly without mark or memorial; the seat of the laird occupies, within the little choir, the position of the altar; the font*, with its ornaments carved in a style which has many analogies in the early Norman period, has been transferred to a neighbouring blacksmith's shop, where it may still be seen as a receptacle for small-coal; and only the shattered pavement remains, to show where, through remote centuries, heroes, the companions of kings, knelt for worship, or perhaps, in the stern fashion of the Northern proselytes, stood up when the Creed was read, laid their hands on the hilts of their swords, and half unsheathed them, in token that they were ready to fight to the death in defence of their faith†.

The exception in the exterior to which I have alluded is the, in many respects, remarkable sculptured stone‡ now built into the wall near the south-western extremity of the church. The work is in low relief, and considerably defaced by time, though the figures can still be traced with tolerable accuracy. The action represents a knight on horseback, clad in a tunic or hauberk, with a capuchon or round helmet, urging his horse against two large animals, the fore parts of which only are seen, and into the throat of one of which he is plunging his lance. Behind him the outline of a figure, resembling that of a bird, or, perhaps, still more probably, that of a lamb with its hinder portion obliterated, is faintly discernible. The sculpture is undoubtedly rude: but there is a certain just proportion preserved be-

* Pl. III.

† Afzelius, *Swenska Folkets Sago-häfder*, iii. D. p. 87.

‡ Pl. IV.

tween the body of the horse and that of his rider; and as the girth of the animals attacked equals that of the former, we may infer the magnitude of which it was designed to represent them. The attitude and character of the heads, and the shortness of the legs as contrasted with the bulk of the carcase, are not unlike the ancient representations of the dragon*, though the want of the hinder parts renders it impossible to decide as to the precise description of monster intended. Beneath are the faint vestiges of what may have been the letters of an inscription, raised also in relief, but now utterly illegible. The stone is traditionally reported to have been removed from above the former door of the church, and from its size, and semicircular form, this is exceedingly probable, as in the early Norman churches a square-headed door was often placed beneath a circular arch, and the intervening space occupied by sculpture. Whoever will compare the figure of the rider with that on the reverse of the seals of David, Earl Henry, or Malcolm†, will perceive an additional reason for fixing the date of the sculpture, and, by implication, that of the church also, at the period to which we have assigned it.

Of the purport of this monument, which is, at least, evidently not sepulchral, the local traditions offer a ready explanation. If we ask any of the peasantry of the neighbourhood, they will tell us, that at some ancient time, they know not when, the district surrounding Linton was infested by a monstrous *worm* or dragon, whose fierceness and voracity spread terror and devastation on all sides. Its den, which a resident rural poet, whose attainments are far beyond his station, has described as—

“On a smooth sloping upland, which rose near a fen,
In a torrent-scooped basin ‡,”——

lay in a hollow, still named the “Worm’s Hole,” to the eastward of the hill of Linton; and from this retreat the monster scarcely required to stir itself, as, with its sweeping and venomous breath, it was able to draw the flocks and herds, and other living objects around it, within reach of its fangs. Such was its size, that it used to coil itself in huge folds round an eminence of considerable height which adjoined its den, and which retains now the name of Wormington. Liberal rewards were offered for the destruction of so terrible a pest; and at length the feat was accomplished by the “wode laird of Larristone,” who, after being

* That there should be two dragons is by no means without a parallel. In the Danish ballad of “Kong Didriks og Lövens Kamp med Lindormen,” the dragon has eleven young ones. The ballad is vigorously worded, and contains many curious details. *Oehlenschläger, Gamle danske Folkeviser*, p. 15.

† Anderson’s *Diplomata Scotiæ*, pl. 12, 20, 22.

‡ Poems by Robert Davidson, p. 208.

once foiled in an attack with ordinary weapons, resorted to the expedient of thrusting a live peat down its throat by means of his lance, which proved completely successful. The recompense for his bravery consisted in the gift of extensive lands in the neighbourhood upon which he had conferred so signal a benefit. The story is a favourite at the cottage hearth, and is received with unhesitating belief; no one daring to dispute such proofs as the stone in the church wall, the den still visible at Wormington on the farm of Greenlees, and the ancient triplet, with its characteristically rude alliteration and ruder rhymes, which tells that

“The wode laird of Larristone
Slew the worme of Wormiston,
And wan a’ Linton parochine.”

The family of Somerville claims the merit of this exploit for that John Somerville, who has been already mentioned as having acquired the barony of Linton in 1174; the lands, it is asserted, having been then conferred upon him by William the Lion, as a reward for the destruction of the Worm. The author of the ‘*Memorie of the Somervills*’ enters into an account of the adventure with such minute circumstantiality, as to prove how much his imagination, or that of his informant, was engaged in the narrative. Yet the size of the monster sinks, with him, into insignificance, when compared with that in the more usually received tradition; and the giant folds, which encircled a little hill, dwindle into a length of “three Scots yards, and somewhat bigger than an ordinary man’s leg, with a head more proportionable to its length than greatness, in form and colour like to our common muir-edders.” It says little for the gallantry of the Scots, a century after the Norman conquest of England, that such a creature became the “terror of the country people;” and the prowess of a Norman baron was scarcely worthily tested by the risk to be encountered in its subjection. That an animal of these dimensions swallowed oxen whole, “instantly devouring them,” rendered the country desolate, not by diffusing any poisonous atmosphere, but by its simple voracity, and struck the inhabitants of Jedburgh, ten miles distant, “with such a panic fear that they were ready to desert the town,” is merely part of the inconsistencies of a tale, which wants all the qualities of the genuine legend, with its uncumbered breadth of outline, and details which, however opposed to the truth as it really exists, are at least usually in unison with each other, and with the prevalent notions of the times in which they claim their origin, or as a reflection from which they own their chief value. The information he has given could not, on this head, be gleaned from the family charters, and it is evidently no pure oral tradition. We can here, therefore, accept nothing farther from the author of

'The Memorie' than a corroboration of the general impression, that at some unascertained period, and to some unascertained champion, the district was indebted for a signal deliverance from an evil scarcely better defined, which had, however, oppressed it heavily, and the release from which was long gratefully remembered.

It can scarcely demand a serious disproof, that no such animal as the dragon could possibly exist in Scotland at the period of the alleged grant of William the Lion; but we may even assert farther, that no event, of which the legend might be accepted as the paramyth, occurred at that era and in this locality. At an earlier period, when the country was probably covered with trackless forests, and when the untutored natives had no better weapons than the stone axes, or the arrow-heads of flint, which are still occasionally discovered in our fields, it could be no wonder that every savage animal of more than ordinary dimensions should become elevated into a monster; and it was but a natural result, that the primitive hunter who succeeded, thus feebly armed, and with instincts scarcely beyond those of his prey, in destroying some huge wolf or gigantic boar, should be worshiped as the hero of his horde and a general benefactor. Guarini was but chanting the traditions of the remotest ages, when he described the triumph of his hero over the terrible boar,—

"Strage de le campagne
E terror dei bifolchi*,"

and no exaggeration was required to render the contest arduous. But when the armed chivalry of the middle ages were brought into such contests, their superior weapons could only obtain credit when employed against antagonists invested with greater terrors; and Sir Eglamour of Artoys would have had no merit in slaying his boar, had its tusks not been described as measuring a yard in length. Scotland, however, at least in its south-eastern division, was, in the twelfth century, no proper field for the origin of such fables. The foundation of several large and richly endowed monasteries showed its resources in wealth and in the arts; and its progress in the latter might also be held as evinced by the elegance of its charters, of which that of Malcolm to the abbey of Kelso remains a remarkable specimen†. On the other hand, that it was extensively cultivated is proved by the liberal donations of malt, of meal and of wheat levied at the local mills, and bestowed upon the same abbey through the munificence of David; while the multitude of villages and of churches, named

* Il Pastor Fido, A. I. Sc. I., and A. IV. Sc. VI.

† See the fac-simile in Anderson's 'Diplomata Scotiæ,' and in the 'Liber S. Marie de Calchou.'

everywhere in contemporary documents, shows that it was closely peopled. There could be here no near refuge for the monstrous or the terrible, though the credulity of the people would still easily accept whatever prodigy reached them, when half intercepted, and wholly distorted, through the haze of distance of time or space.

Accordingly, we find no such notices recorded by those monkish chroniclers who resided within the district, and who were not unfrequently the minute observers of events occurring around them. The '*Chronica de Mailros*,' though, previously to 1140, probably merely a compilation from already existing histories, seems after that date to be the production of individuals who were contemporary, or nearly so, with the events they register; and their work has thus all the credibility which belongs to the circumstances of its time and the peculiar situation of its authors. Yet, though the reign of William affords them opportunities of recording that "tonitruum horribile mugit xvii kalendas Septembris;" or that (in 1173), "tussis quædam mala et inaudita omnes fere longe lateque occupavit, in qua vel ex qua peste multi mortui sunt*;" or that (in 1182), "multi piscatores cum navibus suis mense Septembri in mari inter Hertelpol et Vitebi nocte miserabiliter perierunt†;" we nowhere find that the greater event of a public calamity warded off, or a public enemy destroyed, in whatever literal sense the circumstance was to be regarded, has been noticed as having occurred near the same period in their own vicinity, though the alleged champion was of a family who were afterwards liberal benefactors of their monastery, and one of whom at least (*Willielmus de Sumerville*, 1242‡) was interred within its walls. Besides, instead of Linton having been really a direct grant from the Crown to the Somervilles, there is reason to believe that they held it merely as a sub-fief from the Cumyns; otherwise, why the necessity of the "charter of new infeftment" which was obtained in 1500 by the then Lord Somerville, "for holding of the barronies of Carnwath and Lintoune *blenche*, which formerly held *black waird* of the croune§?" When we add, that it was by no means necessary for a Norman baron to perform any peculiar exploit, in order to obtain a settlement and liberal grants in this country in the time of David and his immediate successors; and that, when he mixed with the Anglo-Danish population which was then predominant in Northumbria and the south of Scotland, and whose Dano-Saxon dialect|| remains easily distinguishable from the milder Anglo-Saxon of the south, he found himself amid a closely congenerous race, from whom he received a ready welcome, and with

* *Chronica de Mailros*, p. 86. † *Ibid.* p. 92.

‡ *Ibid.* fol. 45.

§ *The Memorie of the Somervills*, vol. i. p. 304.

|| *Rask, Angelsaksisk Sproglære, Fortale*, p. 30.

whom he could naturally associate ; we have stated all that is requisite to show, that it is neither to the times of William the Lion, nor to the family of Somerville, that the legend of the Worm of Wormington can bear any true reference.

There could be little profit in unravelling the tangled skein of an old legend, were it not for the glimpses it brings before us of the modes of thinking and states of existence of ages long past. And yet, to own an interest in the particular legend of the dragon, for its own sake merely, is nothing more than to confess the influence of that fascination which has long rendered it a special favourite of the most diversified and widely separated nations. Transferred by the Greeks from the garden of the Hesperides to shine as a constellation in the heavens, and occupying a prominent place in our own sacred writings, it reappears among the myths of the Romans, and performs a conspicuous part in the early tales of chivalry ; while China, in the far East, is equally renowned for its dragons and its porcelain. This universality of the tradition, like that of the deluge, seems to denote its origin in fact : and nature had indeed its prodigies in the primeval world equal to those that romancers have fabled. It is true that we have not the slightest grounds for believing that the existence of man was coetaneous with that of the monsters of the early world ; but if the later Mammoth (*Elephas primigenius*), in even our own day, has been found with its skin and flesh and eyeballs entire, amid the ice blocks of Siberia, does it not come within the limits of possibility, that some accidental denudation of the strata, or some extraordinary circumstances of preservation, may have presented to man, in his first stages of being, the vast outline of the *Megalosaurus*, in the perfection and fulness of its giant proportions, such as can never be witnessed in our times ? Once seen by the naked savage, feebly armed with his hatchet of stone, the appalling image would never afterwards forsake his memory, nor the tradition that of his descendants ; mingling itself, undoubtedly, like all other traditions, with extraneous matters, and confusing itself gradually more and more, as well through the influence of really existing analogies, as through the rudely fanciful creations belonging to a poetry and mythology looming through the twilight of a far-distant period. Thus the tradition would slowly diffuse itself, and be transmitted to us darkly, yet as an actual memory of the prodigies of a former system of creation ; till at length the newer investigations of the geologist might seem to entitle us fairly to assume, that the fossil Saurian which he has reconstructed from a few of its fragments, and the dragon of the fabulist, are one and the same being.

As the dominant race in the south of Scotland, at the time

when we have supposed the church of Linton to have been founded, was clearly of Teutonic origin, it will be proper to confine our general notices of the dragon to such as may be gleaned among the early records of that people or of its different sub-families. With regard to its name, it was called sometimes in Norse, *ormr*, in Anglo-Saxon, *vyrn* or *wyrn*, in old German, *wurm*, in the Gothic, *vaúrms*, as in our own local dialect, *worm*. In the 'Nibelungenlied' it is termed *lintrache*, *lintdrache*; and in 'Siegfriedslied,' *lintwurm*. There is something like a tautology in this, for, in the old Norse, *linni* also signifies a serpent; while in the same language it is sometimes styled *lyng-ormr* (heath-worm), in token of its frequently inhabiting heaths or desert places*. In modern German it is *lindwurm*, as in the Danish and Swedish ballads it is *lindorm*; though in the latter the monster thus named is sometimes confounded with the *hvíta orm*, a creature not only harmless, but popularly believed to be possessed of singularly precious endowments†. The name *ling-orm*, or *ljung-orm*, becomes then reserved for the more destructive animal.

It was ordinarily described as breathing forth poison and fire, as if its formidable dimensions could not alone excite sufficient terror. When winged, it was particularly entitled to the name of dragon; but wings were only occasionally ascribed to it. The impenetrability of its scales was one of its unfailing attributes, hence it was by thrusts in its throat that fatal wounds were usually inflicted; when the champion, beyond even the credit of his victory, might secure to himself the power of understanding the language of animals, by eating of its heart, and an unyielding temper to his weapons, and invulnerableness to himself, by smearing with its blood. In our own romance of Merlin, we are told that—

"The mouthe he hadde grinninge,
And the tonge out-plattinge,
That out kest sparkes of fer,
Into the skies thot flowen cler.
This dragoun hadde a longe taile,
That was wither-hooked, sans faile."

But as Guy of Warwick slew a dragon in Northumberland, for King Athelstan, his romance becomes a better local authority, and it fortunately provides us with the following description:—

"He is as black as any coal,
Rugged as a rough foal:
His body, from the navel upward,
No man can pierce, it is so hard.

* Grimm's *Deutsche Mythologie*, pp. 652-5, 2nd edition.

† Svenska Folk-Visor, utgifne af Geijer och Afzelius, D. iii. pp. 121-239; D. ii. pp. 71-252.

His neck is great as any sommere ;
 He runneth as swift as any destrere.
 Paws he hath as a lion,
 All that he toucheth he slayeth dead down ;
 Great wings he hath to flight,
 There is no man that bar him might."

In the "Reis van Sente Brandaen," a Flemish poem of the 12th century, the *Draken*, as well as the *Lijntworme*, is represented as vomiting forth fire :—

" Draken groet gruwelijke,
 Ende lijntworme vreselijke,
 Die worpen t' allen stonden,
 Dat vier uten monden *."

Even the gods were not always destined to withstand powers so tremendous. At the end of the world, Thor is to slay the famous *Midgards-wurm* ; but he is himself to fall, at nine paces from it, destroyed by its poison.

As to the precise dimensions of the monster, though its general vastness is often dwelt upon in terms sufficiently extravagant, the narrators rarely descend to any exact measurement. We have seen, however, that the subject of the prowess of John de Somerville reached only some ten feet in length ; but the timidity of the modern fabricator has evidently embarrassed him in his description. Sir Degore, in the romance of that name, beat out the brains of one with a club, which was

" Twenty-two foot, withouten fail,
 Full of fire, and also venym."

In the Anglo-Saxon poem of *Beowulf*, which probably dates towards the end of the fifth century, the hero encounters a dragon, and succeeds in destroying it, but perishes soon after from the injuries received in the conflict. It measured fifty feet in length, when extended :—

" se wæs fiftiges
 fót-ge mearces
 lang on legere."

But the descriptions of the dragon often imply dimensions far beyond these ; and its strength was represented to be such, that its writhings shook the ground under which it lay, or the surface was deeply indented by the lashing of its tail. Its retreat was usually chosen in some secluded valley or glen.

A monster, portrayed with attributes so terrible, could not fail to take a strong hold of the popular imagination, at a time when every hearth had its goblin, and every stream its nixy, and when credulity was sure to people the unknown gloom with still

* Blommaert, *Oudvlaemsche Gedichten*, der xii^e. xiii^e. en xiv^e. Eeuwen.
 —D. i. p. 114.

more dreadful and mysterious shapes. That which of all other creatures appeared the most fruitful of evil, began at last to be adopted as the symbol of evil, and it became then an easy transition to consider it as only another name for the principle of evil itself. Dragons were seen in the air, as the portents of remarkable calamities. "Anno dccxciii," says the *Chronica de Mailros*, "visi sunt in aere flammei dracones, quod signum duæ pestes subsecutæ sunt, prius intolerabilis fames, deinde sevicia gentis paganorum et Norwagensium, qui eodem anno Lindisfarnense Monasterium destruentes, monachos occiderunt, et Northumbriam miserabile strage percusserunt*." With the ruthless northern spoilers the dragon was given as a name to their ships, and it appeared on their helmets, their standards, and their shields. In the romance of *Merlin*, as in an episode of the history of *Nennius*, the red and white dragon are used as emblematical of a good and bad cause; the white representing the aggressor. The principle of evil being thus symbolized, the dragon and Satan next stood to each other as interchangeable terms. Another transition was to elevate the principle of evil into the god of evil, a form of superstition which had a wider range than the heresy of the Manichæans, or the faith of the more ancient Magi; and the dragon became now actually an object of adoration, of which instances may be easily gathered from among the pagan practices of the northern tribes†. Thus, as the dragon had become the symbol of social evil with the imaginative heathen, it became the symbol of religious error with the early Christian, scarcely less prone than the other to personify an abstract principle. Hence to crush heathenism, or to subdue heresy, was to destroy the dragon‡. The legend of *St. George of Cappadocia* is thus merely a Christian myth, admitting this explanation; and it will be observed, that, through all the variations of the legend among different nations, one uniform result of the victory, or rather condition of the contest, was the conversion of the people whom the saintly knight delivered from the monster. There is a beautiful tradition, connected with the *Drachenfels* on the *Rhine*, which informs us that in ancient times a dragon lay there, which received the worship of the inhabitants of the district, and was propitiated by human sacrifices. A young and noble Christian maiden, of singular beauty, and who had been taken captive, was devoted as a victim. Robed in white, and with a wreath of flowers in her hair, she was led up the steep mountain, and bound to a tree near the dragon's den, beside which was a large stone that served as an altar.

* *Chronica de Mailros*, A.D. 793.

† *Grimm's Deutsche Mythologie*, p. 40.

‡ *Ducange, Glossarium Med. et Infim. Latin. v. Draco.*

The worshippers gazed at a distance, not without pity mingling with their adorations. The maiden looked intently towards heaven. At sunset the dragon issued from its retreat and hastened towards the altar. But a new power was to be opposed to it: innocence, shielded by the virtues, and armed with the symbol, of the true faith. The maiden drew from her bosom a small crucifix which she carried, and pointed it towards the monster, who shrunk back trembling, and reeled over the abyss, to disappear for ever. The people, strangely excited by the spectacle, approached the maiden, loosened her bonds, and gazed with astonishment on the little cross. She explained to them the sacred emblem; when they fell on their knees, beseeching her to return to her native country, and to procure for them ministers of her holy religion to instruct and baptize them. Thus was Christianity introduced into their land; and a chapel was founded on the spot where the altar of the dragon had stood*.

We have already seen that it was usual with the first converts to Christianity to build their churches on the sites of the heathen temples. These primitive churches are still known, in some parts of Scandinavia, as "Our Lady's churches;" having been nearly uniformly dedicated to God, under invocation of the Virgin Mary. The heathen temple had always, in its near vicinity, its sacred well, in which the victims for sacrifice were washed and purified. These too were usually assumed by the converts of the new religion, who strove to occupy every stronghold of the ancient superstition, to be used as vantage ground for the triumph of the better faith. The holy wells were dedicated to the Virgin, or to some favourite saint, and were often accredited with peculiar virtues. It is now worthy of remark, that the principal early churches in this district, Kelso, Dryburgh, Melrose, Jedburgh, Eccles, and Coldingham, had also their chief dedication to the holy Virgin; and we may therefore infer that the humbler church of Linton was similarly devoted. If Linton had been the site of a pagan temple, it would have possessed its sacred well; and when both were transferred within the pale of Christianity, to acquire a new sanctity, the spring would naturally be hallowed through the same dedication as the church. The fact, therefore, that there exists a well, called the "Lady well †," at a short distance eastward from the church knoll, is only confirmatory of the opinion which has already been hinted, that Linton especially, like so many others of the first churches, has been reared upon the ruins of a former shrine of

* Schreiber's *Handbuch für reisende am Rhein*.

† In 1686, Janet Pringle was served heir to her father, Robert Pringle of Cliftoun, in part of the barony of Lintoun, and amongst others in *Lady-well brae*, with the privilege of commonage in *Worm-den*.

paganism. It was upon this spot, then, that the dragon was subdued; and here, too, it was fitting that the monument should be erected which was to serve as the emblem of the conflict, and to perpetuate the triumph.

But if the sculpture at Linton be merely a symbolical representation of the victory of Christianity over the old idolatry, it ought to be held as probable, that where churches have been founded elsewhere under similar circumstances, we should meet, at least occasionally, with a similar monument. And there are, accordingly, many instances, in countries inhabited by races congenerous with those who occupied this district at the period of the introduction of Christianity, where sculptures representing dragon conflicts appear on the ancient church walls. To these countries we shall purposely, as hitherto, confine our illustrations: and we are the more willing to introduce them here, because none of our best antiquaries, such as Scott and Chalmers, who have touched upon the legend of Linton, have attempted to place its subject in a similar light. Thus, in the church of Oberbirsch, in Hesse Darmstadt, a district which was early christianized, there is a monument of a knight, Hans von Frankenstein, standing upon a dragon which he has subdued. In the chapel of St. Margaret, at Burgdorf, in Berne, there is a similar monument; the era of the story connected with which is laid as far back as the year 712*. At Nyborg, in Fünen, there was in ancient days a temple, the abode of a frightful dragon, which exacted daily the offering of a human victim. The monster was destroyed by the knight Sir Jörgen, and on a bell in the tower of the neighbouring church of Svendborg may still be seen a representation of the conflict†. Two dragons had their nest at Lyngby, in the old times, so close to the church as to keep the Christian worshipers in perpetual danger and alarm. Both were slain; and in the churchyard there is still a sculptured stone which bears witness to the event. At Alsted church, near Sorö, in Seeland, there is a monument in commemoration of a similar occurrence; and there is the same tradition regarding a church at Höiby. Over the door of Eiby church, also in Seeland, there is a dragon sculptured, with an illegible inscription. The tradition connected with it is a recurrence of that at Lyngby. A dragon infested the cathedral church of Aarhus, in Jutland, which was destroyed by a singular contrivance, the memory of which is still preserved by a piece of sculpture within the precincts‡. In the principal church of Ladvig, in Norway, there was guarded, from time immemorial, a banner, on which was re-

* Grimm's *Deutsche Sagen*, N. 216-219.

† Thiele, *Danmarks Folkesagn*, D. i. p. 275.

‡ Ibid.

presented St. Olaf, in full armour, trampling on a dragon. St. Olaf, it will be recollected, established Christianity in Norway towards the commencement of the eleventh century; proselytizing sometimes by not the gentlest of methods. The intention of the symbol is, therefore, here as distinct as it is appropriate*. In Sweden, Afzelius informs us, there are many churches in which representations of dragon conflicts are sculptured in stone†. The banner of St. Eric (1155–61), the palladium of victory with the ancient Swedes, was kept in the cathedral church at Upsala as a sacred relic. On one of its sides was embroidered in gold a lamb and a dragon; and the accompanying inscription denoted that these were to be held as typical of the mildness of the sainted monarch in peace, and of his prowess in war:—

“I helgd och frid
Som Lambet blid,
I fejd och krig
Som Lindorm wig.”

We are thus reminded of the indistinct outline, which we have surmised to be that of a lamb, behind the figure of the knight at Linton; and this animal here peculiarly suggests itself as an ordinary emblem of the purity and mildness of the Christian faith. Turning to Flanders, we find, that in the church at Wasmes, in Hainault, was preserved an ancient picture to commemorate the destruction of a dragon about the year 1133. The champion was Gilles de Chin; and under the picture, in which he is represented kneeling before an image of the Virgin, is the following quatrain:—

“Sainte Vierge en ce jour
Je viens pour t'implorer,
De détruire en ce jour
Un dragon, qui vient nous dévorer.”

There is a curious legend of a dragon at Ghent, in which the image of the creature appears to have been solemnly baptized‡. But the church of Our Lady at Kerselarberge was, of all others, the most fortunate; for Arnoud van Pamelu, who slew the monster, placed, says the tradition, the identical carcase within the sacred walls, as a perpetual memorial§.

We have forborne from entering into the minute details of these traditions, though all of them are curious relics of their times. It will have been observed that sometimes the name of the knightly champion is recorded; but in others the successful

* Nordisk Tids-skrift for Oldkyndighed, B. iii. p. 250.

† Afzelius, Svenska Folkets Sago-läfder, D. iii. pp. 148–170.

‡ Wolf, Nederlandsche Volksoverleveringen, p. 155.

§ Ibid. “*De lieve Vrouwen-kerk te Kerselarberge.*”

combatant is an ox, which has been specially nourished on pure sweet milk for a series of years, till it had acquired strength tremendous enough for so fierce a contest. In Eiby church there is preserved a portion of the horn of the ox, in farther sure testimony of the authenticity of the story*. All the traditions agree in one essential point: that legends of dragon conflicts have connected themselves with a number of ancient churches, and that representations of these have been preserved, for the most part in stone carvings, within the precincts of the buildings. That the tradition should have varied as it passed from land to land, gathering a trait here and a peculiarity there, as it mingled itself with other popular fancies or recollections, while it still carried with it the expression of a general fact which found a home everywhere, is only a proof that one common and original idea existed as the groundwork of the widely accepted belief; and that idea was manifestly the subjugation of the cruel and terrible system of northern polytheism to the milder religion of the cross. Thus the legend of the Worm of Linton appears as a Christian myth, of which the carving on the stone is simply the artistic embodiment: and the credit of the exploit falls away from the shadowy grasp of its ancient possessors, the monument, as in a thousand other instances, having given rise to the story, and not the story to the monument.

There is a peculiarity in the church knoll of Linton, which must have attracted observation at an early period, and which has led to a prevalent belief that it is wholly of artificial construction. In digging into it for the purposes of interment, the sexton cuts only through a fine, compact sand, which has nowhere hardened into stone, but the particles of which cohere so closely, that the sides of the newly opened grave appear smooth and perpendicular as a wall. Excavations to the depth of fifteen feet have been made without any other substance being encountered; not even a single stone or pebble being imbedded in the mass, or found anywhere, unless such as may chance to have fallen upon the thin layer of mould which clothes the surface. The structure of the adjoining heights is wholly different; and it is evident that causes have operated at this spot which have shown no agency elsewhere in the vicinity. But the love of the marvellous has here again stepped in, and Linton has its second legend in the churchyard knoll.

Long, long ago, says the tradition, a young man killed a priest, and was condemned to die for the crime and sacrilege. Strong intercessions, however, were made in his behalf; and it was at last agreed, that if his two sisters would undertake the penance

* Thiele, *Danmarks Folkesagn*, D. ii. p. 286.

of sifting as much sand as would form the mound upon which Linton church was to be built, his life might be saved. Female hearts are kind, and enduring in their affections; and the fond sisters bent themselves to the task, which, through patient toil, was at length completed, though at the sacrifice of one of their lives. Thus the youth was delivered, and the stoneless heap remains now as a clear testimony to many of the truth of the legend, while a hollow, a short distance to the westward, marks the spot from which the materials were taken.

If we cast our eye, from this very eminence, over the plain beneath us; and, still more, if we follow the course of the Kail towards the narrow outlet at Marlefield; it will appear evident that the whole of the flat expanse has formed, at one time, the bed of a considerable lake, of which a miserable remnant still remains to the eastward, but by far the greater part of which has been drained off, partly by being filled up through the debris carried down from the hills, and partly by a gradual alteration of the levels at the lower extremity. There would necessarily be a time, before the Kail had completely worn its channel through the old red sandstone at Marlefield, down to the existing level, when, with every alternation of the seasons, as drought or moisture prevailed, the bed of the lake would present either a dry and barren surface to be swept over by the winds, or a wide expanse covered by the waters of the freshet, charged with the particles of fine silt or sand, the detritus of the Cheviot porphyries, which every tributary streamlet would sweep with it in its course. On the subsidence of the waters, each new deposit of sand would again be subjected to the influence of the sun and the breeze; and the prevailing south-westerly winds, passing with violence over an expanse bare of herbage, would whirl it up in clouds, and carry it eastward. The nearest of the neighbouring eminences, so placed as to break the force and change the direction of the gale, would cause it to deposit its burden; and the sand, eddying as it fell, would accumulate in heaps under the brow of the height. A recurrence of this process, at short intervals, through no very protracted series of years, would suffice to raise such a mound as that of Linton; and it was thus, in all probability, that the knoll was actually raised.

The legend of the sisters must at once be abandoned, owing to its incredibility. Even in these days, when our command over the material world has risen so high, we can scarcely be asked to contemplate the possibility of two maidens, though they had toiled, each for three lives, with every conceivable amount of patience and ingenuity, being able to sift, into a material so exceedingly minute in its particles, a mound of the dimensions of that of Linton; which at a rude estimate, but certainly not an exagger-

rated one, must have a solid content of considerably upwards of half a million of cubic feet. The process, however, which has just been suggested, is precisely that by which so fine a material was likely to have been first gathered and set in motion ; while the site of the mound presents also those conditions which would be equally favourable for its ultimate deposition. Neither is any special wonder requisite for its accomplishment ; for the same process has been often witnessed elsewhere, and there are many situations in which it is in progress even now. Considerable villages, forests, and cultivated lands have disappeared under these drifted heaps. In the department of the Landes, a hill more than sixty feet high may be said to be seen advancing upon the village of Mimisan, which is in danger of being overwhelmed ; and the Adour, though flowing generally with a full and rapid current, is known to have been turned nearly a thousand fathoms from its original course. On the margin of the great American lakes, especially at the eastern extremity of Lake Superior, sand-hills are said to have been thrown up to the height of 150 feet. But even in the immediate vicinity of Linton, something like the same set of causes has recently shown itself in brief operation. In March of the present year there was a remarkable tract of cold and dry weather : the seed corn had not yet vegetated, and the fields were bare of verdure. On the 30th of the month arose a violent tempest of wind, without rain. The effect of this was to raise the dry soil as a fine dust from the surface of the fields, and to drive it towards the north-east, the gale having been south-westerly. Of this drifted soil not less than 200 cart-loads were removed from a small extent of the road leading from the valley of the Kail towards Caverton. The same process, a hundred times repeated, at a period when there was more frequently a fitting concurrence of circumstances for its agency, would have sufficed to produce the effect which we have conceived at Linton.

Even if it should be proved that the Linton knoll had been used as a tumulus for purposes of ancient burial, this would neither demonstrate its artificial origin, nor be in any way inconsistent with the other purposes to which we have supposed it to have been adapted. There are many instances to show that natural tumuli have been selected as places of sepulture ; and where the remains of a revered chieftain or king were deposited, was also a favourite resort of the people on their great occasions of assembly. But the legend of the sisters had, nevertheless, its basis ; and that lay undoubtedly in the anxiety of the Catholic priesthood to promulgate the loftiest ideas regarding the sanctity and inviolability of their office. A deep thought thus lies under the wild fancy ; and a natural phenomenon, otherwise

inexplicable to the many, was seized upon to show how heavy and how peculiar had been the penance, and yet how tempered by mercy, which had followed the perpetration of a sacrilegious murder. The manner of inculcating the lesson was in the true spirit of the times, when credulity was rarely startled by the imposture which simplicity and ignorance were careless to detect, and around which bigotry threw a veil which it would have been profanation to have withdrawn. To induce faith in such a legend was at once to shield themselves behind the fears and the affections of the people.

The twin legends of Linton suggest a speculation regarding the origin of the name, which it may be interesting to notice. It will be recollected that in the early charter of Richard Cumyn, dating about the middle of the twelfth century, the name appears as *Lyntunruderic*; while in the Confirmation of Bishop Herbert, only a few years later, it is mentioned as *Lintun Ruderich* in the body of the deed, and *Lyntunruderyc* in the rubric. We have seen that in the old Scandinavian dialects *linni* signified a serpent; and we have evidently in this word the root of the terms *lintrache*, *lintdrache*, and *lintwurm*, which appear in the ancient German, and which signify a dragon. *Tun* is the well-known Anglo-Saxon word, signifying an enclosed space, a dwelling, or an aggregation of dwellings, and which has been universally modernized into *ton*, or town. Linton may therefore be easily understood as the "*Dragon-town*." An etymologist so eminent as Grimm considers that Limburg, in the Netherlands, has been similarly derived, and was originally Lint-burg; while Lindholm, in Jutland, and Lindam, a locality near Colding, in the same province, are both of them connected with legends of dragons, to which they are probably indebted for their name. On the other hand, *hridrian* in Anglo-Saxon signifies to riddle, or sift, and *hridrud*, or (*seó*) *hridrude*, signifies *sifted*. *Hrig* or *hric* (rick) is the term for a heap; and *hridrudhric*, therefore, easily contracted and softened into *ruderic*, would denote the "*sifted heap*." If *Lyntunruderic*, then, imply the "*Dragon-town at the sifted heap*," as it may be understood with much appearance of probability, we have in the double appellation a singular revelation of the whole traditionary history of the locality: and we have here a proof also of the considerable antiquity of the legends themselves, or of the foundation which we have supposed for them; for if these have given a designation to the locality, superseding that by which it may have been anciently known, it is clear that they must have been in existence prior to the middle of the twelfth century, when the name first occurs, and of course prior to the era of the fabulous exploit of John de Somerville. We are thus once more carried back towards the

period of the final triumph of Christianity over heathenism, as that near which we are to date the real origin of the dragon tradition of Linton. The legend of the sisters has been probably somewhat more recent.

The church and fortalice of Linton would naturally collect around them a considerable body of retainers and dependents; and we find accordingly that in former times the village was of considerable extent. Many of the old dwellings have been removed, even within the memory of those still living; and the foundations of others are still occasionally detected by the plough. Tradition states that the cross stood nearly opposite the present farm-house, and in the close vicinity were the Butts, where the inhabitants met to practise archery. A circular encampment, the relic of a far more ancient system of warfare, existed on the hill of Wormington, within which, now forty years ago, several weapons of brass were discovered. The whole neighbourhood, indeed, is teeming with the remains of a remote antiquity, which neither my scope nor limits permit me to notice, but from which, however, as from the *Bautasten* on the contiguous moor of Whitton,

“Where on the heath, beneath the stone,
The monarch lies in peace *,”

I turn with some reluctance. I shall only add, as a comparatively recent trait of the inhabitants of the village itself, which it may be interesting to the members of a Berwickshire Club to learn, that on the “first daie of Februarie,” 1596, “Robyn Daglissee and John a Daglissee of Lynton,” with two others, came into the “Bowndes of Barwicke,” and took six horses “owt of the Snooke and Mawdlen fildes:” for which act of temerity they suffered a severe retribution, one of the party having been afterwards taken within his house by a troop of English horsemen, who “cutt him all in peces, and so came their waies, all the countre beinge up at the cryes †.”

Such are the associations which gather themselves round the little church of Linton. Many of them belong to that remote period, which occurs in the history of every people, when the myth and the authentic narrative approach and melt into each other. Through this neutral ground we are led to wander, darkly for the most part, yet not always doubtfully; for if the objects we contemplate seldom reach us clearly through any light of their own, it is yet often possible to reflect other lights upon them, so as to enable us to discern each with tolerable accuracy. There is something soothing in the calm interest with which we

* Swedish ballad of “Kung Anes Fall.” Afzelius, D. i. p. 95.

† Letter of Sir John Carey to Lord Hunsdon, 3rd July, 1596.

explore events and themes so far removed from us : and so wide is their suggestiveness, that the reflective observer may read, even on this narrow field of Linton, the continuous history of his country's fortunes and of its growth in civilization. The records of the little spot seem to expand themselves into the general records of our race ; and the subject rises into importance enough to show, that such topics are only trifling when they are looked upon with the eye of the trifler.

Kelso, 13th July, 1850.

A Meteorological Table from a Daily Register kept at Cheswick House, in lat. 55° 41' N., long. 2° 03' W., for the year of our Lord 1849. By ALEXANDER AITKEN, Gardener to JOHN S. DONALDSON SELBY, Esq.

Months.	Days of the month.	Barometer.				Thermometer.				Rain gauge. Monthly quantity of rain.	Dry days.	Rain or snow.
		Lowest in the month.	Highest in the month.	Mean.	Monthly mean.	Lowest in the month.	Highest in the month.	Mean.	Monthly Mean.			
		Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.		
January	31	28·60	30 19	29·39	29·59	10°	45°	27°	32°	1·99	18	13
February	28	28·96	30·60	29·78	29·92	20	47	43	36	0·83	23	5
March	31	29·27	30·30	29·78	29·90	20	57	38	37	1·42	21	10
April	30	29·35	30 24	29·79	29·61	24	59	41+	38+	2·23	17	13
May	31	29·10	30·24	29 67	29·86	37	65	51	47	2·00	20	11
June	30	29·60	30·18	29·89	29·93	35	67	51	49	1·79	19	11
July	31	29·34	30·36	29·85	29·46	40	70	55	53	2·26	16	15
August	31	29·18	30·14	29·66	29·83	36	64	50	52	2·25	18	13
September ...	30	29·05	30·50	29·79	29·95	34	61	47+	46	1·49	19	11
October	31	29·42	30·50	29·95	29 74	25	58	41+	37	2·61	21	10
November ...	30	28·66	30·10	29·36	29·66	20	50	35	35	1·60	18	12
December ...	31	29·30	30·70	30·00	29·83	20	4	30	33	2·95	18	13
Mean for the year		29·15	30·33	29·74	29·77	26·7	56·7	41·5	41·2	23·42	228	137

Extremes of Barometer and Thermometer during the Year.—Barometer was highest on December 23rd, viz. 30·70 inches, and lowest on November 5th, viz. 28·66 inches. Thermometer was highest on July 8th and 10th, viz. 70°, and lowest on January 3rd, viz. 10°. The hottest days were July 8th and 10th, the mean = 63°. The coldest day was on January 3rd, the mean = 15°.

Rain Gauge.—The greatest fall of rain was on July 23rd, which was 0·78 inch. The wettest month was December ; rain fell during the month = 2·95 inches : and the driest month was February ; the rain fell during the month = 0·83 inch.

August 4th, observed the blight on the potatoes, and found



FONT OF LINTON



ANCIENT SCULPTURED STONE IN LINDSEY



Schmidt Collection, No. 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000



the first rotten one on the 15th. The depth of rain fallen this year is=23·42 inches. The dry days in the year are=228, and wet days=137; this year containing 365 days.

In the year 1848 the rain that fell was 27·93 inches, as observed at Cheswick.

Feb. 19th, 1849, a luminous arch in the heavens was observed about 10 P.M., extending from the south-west to the north-east quarters of the sky. The appearance lasted half an hour; those parts of the arch nearest to the horizon continuing longest visible and being the most brilliant in colour, which displayed all the hues of the rainbow.

July 4th, 1849. A double rainbow of great brilliancy of colours was observed, and a great deal of rain fell about this time. Wind north.

Notice of some Fossil Remains of the Bos primigenius, Owen, &c.

By P. J. SELBY, Esq.

THE interesting fossil remains of the Bovine animal now exhibited to the members of the Club, were found many years ago in cutting a deep drain about a mile and a half from Twizell, in a low, flat district, known by the name of the Adderstone Mains Bog, through a portion of which the Newcastle and Berwick Railway now runs, to the north of the Lucker station. The upper stratum or surface of this flat consists of a thick deposit of peaty earth, and at that time, in some of the wettest parts, was overgrown with willows, aquatic plants, and reeds; and, in the drier portions, covered with a natural turf, consisting of grasses and plants usually found in such localities, but which now, in consequence of having been drained, produces abundant crops of corn and turnips. Beneath this covering of peaty soil is a water, or post-pliocene deposit, consisting of whitish clay, gravel, and water-worn stones, in which, but not deeply imbedded, the bones now exhibited were found. The portions brought to me consisted, 1st, of the core of a horn, much broken forwards or towards the tip, but with the circumference perfect at the base, and to which a portion of the frontal part of the skull was attached; and 2ndly, the upper surface of a part of the core of the opposite horn, also with a similar and nearly equal portion of the frontal bone. I do not now recollect, nor can I find any notes made at the time, to inform me whether any other bones were stated to have been met with or observed associated with the remains of this interesting skull, or whether the skull itself, when first discovered, was in a more perfect state than when brought to me by one of the workmen employed in cutting the drain. At that period, now upwards of thirty years ago, geo-

logy, as compared with the science in its present advanced state, was in its infancy, and had scarcely estimated the aid it was afterwards to receive from the study of zoology, or the more recent science of palæontology, a science which the acute and discriminating powers and the philosophic views of an Owen, following in the footsteps of the illustrious Cuvier, has so beautifully and, I may add, wonderfully carried out and illustrated, bringing into view as it were the perfect forms of creatures belonging to different epochs, and whose osseous remains have lain buried in various strata of the earth for thousands of years. After a careful inspection of these remains, my attention having been arrested by the size of the horn core, indicating its possessor to have been an animal of much greater bulk than any of our domestic cattle, I had them carefully put away in a situation where they were not likely to be injured or molested. In the course of time, however, the circumstance and the place where the bones were deposited had become so far forgotten, that when my attention at a later period was called to palæontological subjects, by the works and writings of Mr. Owen, and still more recently by the papers of Professor Nilsson, contained in the 'Annals of Natural History,' "On the extinct and existing Bovine Animals of Scandinavia,"—it was not till after a long and laborious search that I at last discovered, if I may so express it, the place of the second sepulture of these ancient fossil remains. On referring to Owen's 'British Fossil Mammals and Birds,' and to the papers before mentioned of Professor Nilsson, and after an attentive comparison of the remains now before you, with the figures and descriptions of the different Bovine animals mentioned by these two eminent palæontologists, I have little hesitation in considering them to have belonged to that species of the genus *Bos*, designated by them as the *Bos primigenius*, the presumed *Urus* of older writers,—an animal of great bulk, and which, as having its remains associated with those of the Mammoth, Tichorine Rhinoceros, and other fossil animals, must have been contemporaneous with them; at the same time strong and powerful reasons are adduced by these and other authors to show that, though now extinct, a species with the osseous characteristics of the fossil animal, and of equal bulk, existed within the historic period, or since the creation of man, as remains of such a bovine animal have been found in the most recent deposits in company with those of the existing species of Reindeer and Elk. Nilsson also mentions a skeleton of this species in the Museum of Lund, which bears on its back, he says, "the palpable mark of a wound from a javelin;" and he also further infers, from older authors and other authentic sources, that an animal bearing all the features of the fossil *Bos primi-*

genius, and distinct from the *Bison priscus*, or great Lithuanian Bison, which still inhabits the forests of that country, existed during and did not become extinct till towards the middle of the sixteenth century. In addition it may be stated, that at the period when the Roman legions first penetrated the forests of Germany, two huge species of oxen are recorded to have been met with, and from the accurate and circumstantial description given by Cæsar and other Roman authors of these two animals, there can be little or no doubt but that the species now extinct and agreeing in its osseous characters with the *Bos primigenius*, and the great Aurochs or *Bison priscus* of Lithuania, were the animals so described. In Britain, where the remains of the *Bos primigenius* and also of the *Bison priscus* are found in the older and more recent deposits, as no mention of them is made by the Romans, it is presumed that they had become extinct before the invasion of that nation; but that I may not trespass too far upon your patience, I refer you to Mr. Owen's interesting volume for further particulars in regard to these two Bovine animals and the various localities in which their respective remains have been found in Britain.

From the Bison or Aurochs the genus *Bos* is distinguished by important characters of its osseous frame, among which the form of the skull and position of the horns are eminently prominent. In the Bison the forehead, instead of being flat or rather concave, as in *Bos primigenius*, is rounded or convex; the horns again of *Bos* are attached to the extremity of the highest salient angle of the head, viz. that which separates the forehead from the occiput, whereas in the Bison or Aurochs, this line is two inches behind the root of the horns. An inspection of the bones now exhibited shows that the former has been the position of this animal's horns, and also that the portion of the frontal bone which still remains, indicates a flatness or concavity of that part of the head; the form of the core of the horn which still remains is also similar to that described and figured in the works already mentioned, though a surmise only can be made as to the probable length of the entire horn. The circumference of the root of the horn-core is almost exactly the same as that given by Nilsson of a specimen at Lund, being 1 foot $2\frac{1}{4}$ inches in girth. Some of the British specimens mentioned by Owen seem to have been of still larger dimensions. With other continental as well as British species of fossil or extinct bovine animals these remains cannot be confounded, the *Bos longifrons*, whose fossil remains have been found also in Britain, having been an animal greatly inferior in size, with comparatively small, short, and differently curved horns; and the *Bos frontosus* of Nilsson, a Scandinavian fossil species, is described as having

had horns springing from long bony pedicels, and with somewhat of the convex forehead of the Bison.

In conclusion I may observe, that various speculations have been entertained as to the origin and descent of the different races or varieties of domesticated cattle, and of such as still live in a wild or a half-reclaimed state, as the White Cattle of Chillingham and other parks. By some, the gigantic *Bos primigenius* is supposed to be the type or root from whence they are all derived; others, and I think with greater probability, are of opinion that they owe their origin to other primitive varieties or species, the intermixture of which has produced the numerous races of domestic cattle of this and other countries; a deduction, however, which renders the determination of the type or root from which each has been derived a matter of most difficult solution, but which also holds good in regard to the origin or types of other animals long domesticated, such as the Dog and the Horse.

Notes on the Habits of the Rook in East Lothian.

By ARCHIBALD HEPBURN.

As the Rook is a bird which derives his chief subsistence either directly or indirectly from the labours of man, so reasoning, partly from a few data and partly from analogy, we may infer that the numbers of this species have kept pace with the progress of agriculture. The following extract from a Statute relative to these birds, of date 1424, throws some light not only on this subject, but upon the physical features of the country.

“Item,—For thy that men considderis that Ruikes biggand in Kirk zairdes, orchardes, or trees, dois greate skaith upon cornes: It is ordained, that they that sik trees perteinis to, lette them to big, and suffer on na wise that their birdes flie away: And quhair it be tainted that they big, and the birdes be flowin, and the nest be funden in the trees at Beltane (1^o of May) the trees shall foirfaulted to the King, and hewin downe, and five schillings to the Kingis unlaw.”

About the middle of last century a spirit of enterprise broke out amongst the farmers in the south of Scotland, which led to splendid results. The proprietors planted woods and enclosures for profit and shelter; the tenantry began to drain, to fallow their lands, to cultivate turnip, red clover, and potatoes in the field; the sheltering woods, the variety of crops, and the frequent stirrings of the land consequent upon improved practices, were all conducive to the increase of the Rook; so much so, that in the united parishes of Whitekirk and Tynningham, wherein

stands Binnie Wood*, the oldest and noblest of all our woods, the tenantry, during a period of thirteen years, assessed themselves in the sum of £142 14s. 7d. to pay for the destruction of 76,655 rooks: about that time they began to attack the turnip in the winter season, and it was believed that these birds arrived in vast flocks from the north on the approach of winter, and departed again in spring†. I think this is extremely probable, and after observing the comparative difficulty that the Rook has in obtaining subsistence during inclement winters of the present æra, with all the modern *luxuries* of turnip and newly-sown wheat, I have no doubt that there was a time when the Rook was a regular migrant from Scotland.

During the present century rooks have increased so much in most parts of this county, as to become a serious nuisance to agriculture; few proprietors have allowed their rookeries to be destroyed, though in general they permit the young to be killed when nearly fledged. In 1845, Lord Elcho kindly permitted the nests in the extensive rookery in Aimesfield park, near Haddington, to be taken down in the month of March, by a gang of men paid by the tenantry; few birds ever returned to breed in their favourite grove; no harm, but, on the contrary, much good resulted to the neighbouring fields from its destruction. During open weather in winter, rooks find subsistence by attending on the ploughs, in turning over the droppings of cattle, and in digging for insects and worms in pasture fields: they are welcome to the gleanings of our stubbles, and above all to the seeds of the wild oat, *Avena fatua*, that terrible scourge of some of our finest corn lands, to obtain which they will sometimes stock up young clovers, and even feed upon the latter during hard weather. Within the last ten or twelve years they have begun to attack the turnip, even in open weather, and this valuable root is never safe until carried off the field; water lodges in the perforations, and decay soon follows in our changeful climate. But all the damage that they do to other crops is but small when compared to their ravages on wheat, the staple production of the county, and of which a large breadth is annually sown at various periods, and at different elevations above the sea, from the 1st of October to the end of March. From the day that the seed is sown until the young plant has exhausted the seed and acquired a firm hold on the ground, the crop is never safe from their ravages; and if the herd-boy is not armed with a gun, the flock will merely fly up on his near approach and again alight on the same field. If a knoll or hill-side is swept bare of snow

* Planted by the Earl of Haddington in 1720. His Countess sold her jewels to defray the expense.

† See General View of the Agr. of E. Lothian (1794), pp. 141, 142.

during a storm, unless closely watched, every plant will be stocked up; and at such times they more especially frequent sheep folded on turnip, and pilfer from the stackyard and from the dunghills in process of formation. In spring they feed upon all our cultivated grains (tares excepted, so far as I know), and upon the germinated seed so long as it is succulent, and the latest sown field or *headrig* is sure to be the haunt of all the vagabond rooks in the neighbourhood: of late years they have shown a strong partiality for bean-fields, and their attendance on the potato-fields is but too well known. During severe droughts in summer they often suffer greatly from hunger, and attack the stacks even close by the onstead with much pertinacity, and fields of clover-hay are often much spoiled for mowing, by their settling to feed on the seeds of the rye-grass: on the approach of harvest they attack the crops where these are *lodged*, or of stunted growth on the rocky knolls so common on our trap formation. The labours of this bird in destroying insects and grubs in their season, are apparent to all, and it would appear that when a sufficiency can be obtained, they are preferred to anything else. What a scene of busy industry does the later cleared turnip-field present! The rooks hardly move out of the way of the ploughs and harrows; the large fleshy grubs of two root-devouring moths, *Agrotis exclamationis* and *Agr. segetum*, which drill holes in the turnips larger than a goosequill, and also destroy them *in toto* shortly after being singled, and a host of other injurious insects, are greedily devoured or carried off to their young; and, in the adjoining oat-field, perhaps every clod and turf has been upturned in searching for the grub of the crane-fly and the wireworm; so that it is probable, if we were better acquainted with the habits of our insect foes, we should prize rooks more highly.

I am well aware that much has been written both in their praise and condemnation: I can conceive that in the badly ploughed and badly managed districts in England, having a large breadth in pasture, and where insect-life is much more vigorous than with us, a large body of rooks might subsist in comfort and prove a blessing to the farmer; but here, where the land is annually, or at all events biennially, under the plough, that they have been suffered to increase, under the protection of ignorant and selfish landlords, beyond their natural means of subsistence, until they have become a curse rather than a blessing, is a fact no less evident to our farmers, than that they had a station appointed them by the all-wise Creator in the great system of nature.

November 1849.

MEMBERS.

	Date of Admission.
1. George Johnston, M.D., Berwick-upon-Tweed	Sept. 22, 1831.
2. Rev. John Baird, of Yetholm	Sept. 22, 1831.
3. William Baird, M.D., British Museum, London	Sept. 22, 1831.
4. Robert Dundas Thomson, M.D., Lecturer on Chemistry in the University of Glasgow	Sept. 22, 1831.
5. Mr. Robert C. Embleton, Surgeon, Embleton.	Sept. 22, 1831.
6. Prideaux J. Selby, Esq., of Twizell House, by Belford	April 20, 1832.
7. Rev. Joseph W. Barnes, Vicar of Kendal	June 18, 1832.
8. Sir William Jardine, Bart., of Jardine Hall, Dumfriesshire	Sept. 19, 1832.
9. George C. Carpenter, Esq., The Cottage, Ford	April 16, 1833.
10. Rev. Thomas Knight, The Rectory, Ford	April 16, 1833.
11. Henry Geo. C. Clarke, M.D., Berwick-upon-Tweed	April 16, 1833.
12. Francis Douglas, M.D., East Indies	July 30, 1834.
13. Admiral Mitford, of Hunmanby, Scarborough.	Sept. 17, 1834.
14. Rev. J. Parker, of Ilderton, by Wooler	Sept. 17, 1834.
15. J. S. Donaldson Selby, Esq., of Cheswick	May 6, 1835.
16. Rev. W. S. Gilly, D.D., Vicar of Norham	May 4, 1836.
17. Rev. Thomas Riddell, Vicar of Masham, Bedale	May 1, 1838.
18. Frederick J. W. Collingwood, Esq., of Glanton Pyke, by Whittingham	May 6, 1840.
19. Mr. Jonathan Melrose, Coldstream	May 6, 1840.
20. Rev. J. Dixon Clark, The Hall, Belford	Dec. 16, 1840.
21. Mr. David Macbeath, Berwick-upon-Tweed	Dec. 16, 1840.
22. Mr. Rowe, Surgeon, Coldstream	Sept. 15, 1841.
23. John Boyd, Esq., Cherry-Trees, Yetholm	Sept. 15, 1841.
24. Robert Home, Esq., Berwick-upon-Tweed	June 15, 1842.
25. Sir Thomas Tancred, Bart.	Sept. 28, 1842.
26. William Murray, Esq., of Marshall Meadows	Dec. 15, 1842.
27. Charles Wilson, M.D., Kelso	July 26, 1843.
28. James Tait, Esq., Edenside, Kelso	July 26, 1843.
29. Mr. James Douglas, Commercial Bank, Kelso	July 26, 1843.
30. William Dickson, Esq., of Amisfield, Alnwick.	Sept. 20, 1843.
31. William Broderick, Esq., Belford	Sept. 20, 1843.
32. John Turnbull, Esq., 16 Thistle Street, Edinburgh. .	Sept. 20, 1843.
33. Rev. George Walker, Belford	Sept. 20, 1843.

34. Ralph Carr, Esq., Dunstan Hill, Gateshead.....	Oct. 18, 1843.
35. Rev. J. C. Atkinson, Danby, Gisborough, Yorkshire	May 1, 1844.
36. Rev. Dr. Thomson, 32 Danube Street, Edinburgh..	Oct. 30, 1844.
37. Rev. Thomas Witham, of Lartington, Barnard Castle	May 7, 1845.
38. Rev. William Ritchie, Berwick-upon-Tweed	May 7, 1845.
39. Mr. William Dunlop, Mayfield, Reston	May 7, 1845.
40. Colonel Younghusband, Belford	Sept. 3, 1845.
41. Rev. Matthew Burrell, of Chatton, by Belford	Sept. 3, 1845.
42. Rev. George Rooke, of Embleton, by Alnwick	Sept. 3, 1845.
43. Charles Selby, Esq., of Earle, by Wooler	Sept. 3, 1845.
44. Archibald Jerdan, Esq., Mossburnford, Jedburgh ..	Oct. 3, 1845.
45. Henry Gregson, Esq., of Lowlinn.....	May 3, 1846.
46. Rev. Hugh Evans, Scremerston.....	May 3, 1846.
47. Rev. William Lamb, of Ednam, by Kelso	June 3, 1846.
48. William Stevenson, Esq., Berwick-upon-Tweed	June 3, 1846.
49. Major Elliott, Berwick-upon-Tweed.....	May 5, 1847.
50. Mr. Archibald Hepburn, Whittingham, Prestonkirk.	May 5, 1847.
51. Patrick Clay, Esq., New-water Haugh.....	May 5, 1847.
52. Rev. John Ayton Wood, of Beadnell, Alnwick	June 16, 1847.
53. Mr. George Tate, Alnwick.....	June 16, 1847.
54. The Rt. Hon. the Earl of Home, Hirsell, Coldstream	Oct. 20, 1847.
55. David Milne, Esq., of Milne Graden, Coldstream ..	Oct. 20, 1847.
56. Rev. L. Shafto Orde, of Shoreston, Bamburgh	Oct. 20, 1847.
57. Rev. Mr. Carr, Norham.....	Oct. 20, 1847.
58. George Turnbull, Esq., of Abbey St. Bathans.....	Oct. 20, 1847.
59. James Renton, Esq., of Highlaws, Eyemouth.....	Oct. 20, 1847.
60. A. Hood, M.D., Amisfield, Coldingham	May 3, 1848.
61. Rev. Christopher Robinson, Kirknewton, Ford	June 21, 1848.
62. Rev. Hamlet Clarke, Sheep Street, Northampton ..	July 26, 1848.
63. J. Campbell Renton, Esq., M.P., of Mordington ..	July 26, 1848.
64. Mr. George Carpenter, The Cottage, Ford	July 26, 1848.
65. Rev. Samuel Fyler, Cornhill.....	June 25, 1849.
66. Rev. W. Darnell, Bamburgh.....	July 25, 1849.
67. Mr. Alex. Douglas, Surgeon, Belford	July 25, 1849.
68. Henry Stephens, Esq., Redbraes Cottage, Bonning- ton, Edinburgh	Sept. 12, 1849.
69. Francis S. Cahill, M.D., Berwick-upon-Tweed	Oct. 18, 1849.
70. Mr. W. H. Logan, Berwick-upon-Tweed.....	May 1, 1850.
71. John Church, Esq., of Bell's-Hill, Belford	July 24, 1850.
72. William Gray, Esq., of East Bolton, Alnwick.....	July 24, 1850.
73. W. Smellie Watson, Esq., Forth Street, Edinburgh	Sept. 18, 1850.
74. John Craster, Esq., of Craster Tower, Belford	Sept. 18, 1850.
75. Rev. William Dodd, of Chillingham, Belford	Oct. 23, 1850.
76. J. R. Forster, Esq., of Tughall Hall, Belford	Oct. 23, 1850.

PROCEEDINGS

OF THE

BERWICKSHIRE NATURALISTS' CLUB.

*Address to the Members of the Berwickshire Naturalists' Club,
delivered at the Anniversary Meeting held at Grant's-House,
September 3rd, 1851. By the Rev. W. S. GILLY, D.D.*

GENTLEMEN,

It is usual for the President, at our Anniversaries, to read a summary of the last year's proceedings of our Club, but having been prevented from attending your pleasant meetings, I am indebted to your indefatigable Secretary, Dr. Johnston, for the notes which enable me to perform this part of my duty. Most sincerely do I congratulate Dr. Johnston on the continued success of our Association, which he so happily established twenty years ago, and which has flourished more and more under his watchful and genial auspices.

“Warkworth, Sept. 18, 1850.—Seduced by its fame, the Club were led beyond their legal limits to meet at Warkworth this day, and the great beauty of the place, independently of its historical and legendary associations, might well be pleaded in excuse of the trespass. The attendance of members was considerable. The company consisted of Dr. Johnston, Mr. Embleton, Dr. Clarke, Mr. Broderick, Mr. Collingwood, Rev. J. Dixon

Clark, Rev. Geo. Rooke, Mr. Jerdan, Rev. J. Ayton Wood, Mr. Tate, Dr. Hood, and Mr. Church.

“The day was very favourable, and discovered every beauty of the scene. The walk was directed, in the first place, to the ‘Hermitage,’ which one member aptly reminded us might have stood as the model for the description of the Hermitage in the ‘Fairy Queen’:

A little lowly hermitage it was,
Down in a dale, hard by a forest’s side,
Far from resort of people, that did pas
In traveil to and froe : a little wyde
There was an holy chappell edifyde,
Wherein the hermite duly wont to say
His holy things each morn and eventyde :
Thereby a cristall streame did gently play,
Which from a sacred fountaine welled forth away.

Book i. canto 1.

“After lingering here awhile, the walk was continued along the river-banks to the wear, or trap, made for the capture of the bull-trout in which the Coquet abounds ; but no fish were taken. During this walk there were noticed *Rubus macrophyllus*, *Mentha rubra*, *Carex pendula*, *Campanula latifolia*, and *Equisetum hyemale*. Retracing their steps the Club next examined the ancient Castle ; and when curiosity was satisfied there, the members, following the public road to Amble, strolled as far as the Breakwater constructing at the mouth of the Coquet, and to the adjacent quarries. Many plants, that are only to be found in salt-water marshes, were observed, amongst which we may mention *Chenopodium maritimum*, *Atriplex littoralis*, *Arenaria marina*, *Glaux maritima*, &c. ; and amongst the rubbish of the quays, *Diplotaxis tenuifolia* in considerable quantities, and *Chenopodium urbicum* sparingly.

“This long and varied ramble prepared the members for a dinner, which was enjoyed in the Club’s usual genial and pleasing manner, and disposed them to listen, with an acquiescent complacency, to the address of Mr. Broderick, their President. The Rev. Dr. Gilly was unanimously elected to be his successor in the chair. Mr. William Smellie Watson and John Craster, Esq., of Craster-Tower, were admitted members ; and the Rev. William Dodd, of Chillingham, and J. R. Forster, Esq., of Tughall-Hall, were named candidates for admission.

“Berwick-upon-Tweed, Oct. 23rd, 1850.—The Club breakfasted with Mr. Home. The members who attended were Dr. Johnston, Mr. Embleton, Dr. Clarke, Rev. J. Dixon Clark, Mr. Home, Mr. Broderick, Mr. John Turnbull, Major Elliott, Dr. Hood, Rev. Mr. Darnell, and Dr. F. S. Cahill.

“The Rev. Mr. Dodd and Mr. Forster were admitted members; and the Rev. William Rigge, of Howick, was proposed for membership.

“The Secretary submitted to the Club a statement of the expenditure and receipts for the past year, and an estimate of the expenditure for the ensuing session, whereupon it was ordered that the subscription should be fixed at 7s. 6d.

“A pretty sketch of the Inn at Abbey St. Bathans, by Mr. Smellie Watson, was exhibited; and drawings of several fishes taken in Berwick Bay, by Mrs. Johnston. There were also shown specimens of *Galeopsis Ladanum* gathered by the Rev. John Baird near Yetholm. Dr. Baird contributed a ‘Notice of the capture of *Sericomyia borealis* on one of the Cheviot Hills in August 1850.’

“The following were agreed to be the places of meeting during the ensuing summer: viz.

May, 1st Wednesday, Cornhill.

June, 2nd Wednesday, Belford.

July, 3rd Wednesday, St. Boswells.

September, 1st Wednesday, Grant’s-House.

“The walk lay along the sea-banks northwards, but nothing novel was observed. The rolling of the wide ocean, and the breaking of its waves at their feet, gave origin to the discussion of a question which has agitated debating-clubs since their beginning to this day, and which is always preceded with a motto gathered from Lucretius, *De Rerum Natura*, lib. ii. 1–4:—

Suave, mari magno turbantibus æquora ventis,

E terrâ magnum alterius spectare laborem;

Non quia vexari quemquam est jucunda voluptas,

Sed, quibus ipse malis careas, quia cernere suave est.

“Cornhill, May 7th, 1851.—The members who attended this meeting were Dr. Johnston, Captain Carpenter, Mr. Broderick, The Rev. S. A. Fyler, Mr. Gregson, and Dr. Wilson. Mr. Fyler entertained the Club to breakfast, but as there were only three members at the hour, no regular walk was afterwards undertaken

—at least the walk was more for exercise than research. However, Captain Carpenter was fortunate in procuring a white variety of the *Myosotis palustris*, hitherto unnoticed in our district.

“An excellent dinner was provided at the Collingwood Arms, seasoned with a pleasant conversation. Mr. Hepburn contributed an interesting paper on the Beasts and Birds of St. Abb’s Head. The Rev. Mr. Rigge of Howick was admitted a member; and, after some discussion as to the recovery of the arrears in subscriptions due, the Club separated.

“Belford, June 11th, 1851.—This meeting was unexpectedly small. Only six members attended it, viz. Dr. Johnston, Mr. Embleton, Dr. Clarke, Rev. Mr. Walker, Mr. Gregson, and Mr. Tate. The company breakfasted at the Hall, and after a stroll through the gardens they walked along the face of the Craggs northwards. Two members went as far as Swinhoe Lake to see what was to be seen there. The walk to younger botanists would have been most fruitful. On the Craggs the spindle-tree grows in great profusion. We also gathered on them *Anchusa sempervirens*, *Geranium lucidum*, *Asplenium adiantum-nigrum*, and a host of other summer flowers; and in Swinhoe Loch Mr. Embleton gathered many specimens of *Potamogeton rufescens*.

“Mr. Tate examined the geological features of the district passed over by the Club. Part of the town of Belford stands on basalt, being a continuation of the range from Spindlestone and Bambrough, and which, proceeding northwards, forms a series of steep cliffs with basset faces to the west. At Middleton, one mile north from Belford, there is an interesting section showing that the basalt is a stratum interposed between limestone and sandstone beds. On the west side of the Great North Road, basalt 15 feet high is seen resting on blue carboniferous limestone, and on the east side of the road the basalt is overlaid with 20 feet of sandstone. It is remarkable that while the underlying limestone is quite unaltered, the overlying sandstone is much indurated at the point of contact with the basalt, exhibiting the usual metamorphic influence of a fire-formed rock. These beds are very undulating,—a phænomenon common in Northumberland in the neighbourhood of basalt; the general dip is to the N.E.

“Mr. G. R. Tate extended his walk to Kyloe Craggs, and examined this favourite haunt of our rare plants, as well as the moor-

lands lying to the south-west from them. The Craggs are basalt, but the moorland rocks are sandstone and shales. In the course of his ramble he noticed the *Convallaria polygonatum* growing in great beauty on the cliffs—one specimen was observed with five flowers; *Asplenium septentrionale*; *Saxifraga granulata*; *Arabis thaliana*; a *Thalictrum* agreeing pretty nearly with Babington's description of *T. majus*; *Allium oleraceum*; *Euonymus europæus*; *Erica tetralix* (*flore albo*). On the moorlands the following were noticed: *Genista anglica*; *Gymnadenia conopsea* (not in flower): a small patch of *Carduus heterophyllus* was seen in the wood at the south-east end of the Craggs. At the Beal railway station *Tragopogon porrifolius* was found growing; but this has evidently been introduced.

“Mr. Tate read a very interesting paper, illustrated with plans and figures, on some Burial Urns which had been dug up at Lesborough near Alnwick.

“St. Boswells, July 16th.—The Secretary has not been favoured with any minutes of this meeting, which he was prevented attending.”

After reading these notes, Dr. Gilly continued:—

You selected for your President, at the last nomination, one who does not profess to throw any light whatever, by his own personal researches, on either of the scientific subjects which usually engage your attention. It is therefore as well that the time has arrived for the termination of his office, and that he should resign the chair, with many apologies for his inefficiency, and with a short address, which will be more consistent with his own un-scientific habits, than with your expectation of a suitable prælection.

I will say a few words to you on the origin of the study of Natural History, rather than hazard remarks of my own on any of its branches.

Entertaining, as I do, some strong convictions on the great moving principle which first directed the mind of man to the acquirement of *every kind* of knowledge, which elevates him above creatures on earth, I cannot but express my satisfaction, in looking over the records of your proceedings, to find that a reverential ascription of “Glory, and honour, and thanks” for all we know, and all we enjoy, to Him who liveth for ever and ever,

appears on the face of almost every address which has been delivered to the Berwickshire Naturalists' Club.

On this anniversary, the twenty-first meeting of your happy and flourishing and harmonious Association, and with the precedent of twenty printed reports before me, it would ill become me if I did not follow the example which has been so well established, and offer a grateful homage to the Fountain of Wisdom from which all knowledge flows.

In speaking of the origin of the study of Natural History, it is not my intention to detain you with anything like a recondite disquisition, but to recall some striking facts to your recollection, and to add to the interest of this gathering by the mention of a few traits and anecdotes which may serve to quicken your zeal in investigations which are always accompanied with pleasure and improvement.

The philosopher who has very properly been called the Prince of Philosophers, "*Princeps Philosophorum*," and the first who made an accurate division of the several sciences, and showed how they should be systematically treated, was He, whose school obtained the name of PERIPATETIC, because his disciples collected and interchanged much of their knowledge, as you do, while they were *walking about*. They had their morning *stroll* as you have, and they had their afternoon lecture as you have.

Cuvier, the eminent modern Professor of Natural History, assigned to *Aristotle* the honour of leading the way, and of doing more for science than any other who had gone before him, especially for that department of science which is called the Natural History of Animals. Buffon thought Aristotle's system of classification to be so original, and so worthy of notice, that he explained it at considerable length in the first volume of his '*Histoire Naturelle*'; and Kidd in his Bridgewater Treatise, comparing Aristotle's account of Animals with the discoveries of modern science, does not hesitate to say, that the ancient philosopher's division of the Animal Kingdom has deservedly been the model for succeeding naturalists. His method has indeed sometimes been abandoned, but for the most part it has been adopted. With such attestations to the merit of the great master, with whom originated the systematic study of nature, and the best mode of classifying objects of natural history, I think you will take an interest in tracking some of the steps of your famous

predecessors, in a path which is so much to your own taste. And what if we can trace them to the same Fountain Head, which we believe to be the source of every science?

Whatever progress Europeans may have made in the cultivation of other arts and sciences, there was but little inquiry, either among the Greeks or Romans, about plants, minerals, fossils, and animals, before the middle of the fourth century before Christ.

Pythagoras was an Asiatic, and his first studies were in Egypt.

Democritus obtained the name of the "laughing Philosopher," because he turned to ridicule the absurd theories which prevailed before his time; and the genius of Empedocles was rewarded, for his attempt to correct some of the many errors of his day in medicine and natural philosophy, by the fable of his suicide in the crater of Mount *Ætna*.

Aristotle was the son of a physician, and his early medical studies first led him to the contemplation of animal and vegetable structure. With such ardour did he pursue his investigations, that he did not confine them to objects on the surface of the globe, but he penetrated into the depths of the earth and sea, to make himself acquainted with the secrets of nature. One of his contemporaries had said, "Nature is concealed under a brazen veil, which the united efforts of men and ages cannot lift up." But Aristotle thought otherwise, and so determined was his research, that to keep his mind on the alert, and his eyes open when they were heavy, after a day's hard labour, he used to read with a metal ball in his hand over a brazen vessel, that it might fall and waken him if he fell asleep.

In those days the labours of men of science were encouraged by princes and public authorities, and Alexander the Great employed many persons—several thousands it is said—to collect animals for Aristotle, from all parts of the world. Alexander not only gave him money to assist him in the promotion of his undertakings, but absolutely laid his commands on those in Europe and Asia who lived by hunting, fishing, and bird-catching, that they should supply Aristotle with all sorts of animals for his experiments. No wonder then that he was able to adopt a plan of classification and to give descriptions which have been so useful to modern writers. His own *personal* experience, added to the information which he gathered industriously from others, gave him opportunities of methodizing his knowledge more ac-

curately than many who went before him, or have come after him in the same path, and he was able to establish a real difference between objects which his divisions of natural history were meant to distinguish.

It may be worth while to remind you, that among the observations of this Father of natural history, he noticed, that animals were more ferocious in Asia, stronger in Europe, and of more varied forms in Africa; that they were more mischievous in mountainous countries than in the plains, and that they were fiercer in the extreme of cold and hot climates than in temperate.

Buffon disputes some of his observations as to the age of animals, but on the whole admits their accuracy. The reader is carried agreeably on, amidst many rough places of Aristotle's Natural History, by some amusing anecdotes, such as that of the old mule who lived to the age of eighty, and became such a public favourite, that it was permitted to go at large, to feed where it liked, and to eat out of the baskets of grain and fruit brought to the markets.

I cannot refrain from mentioning that Aristotle directed attention to the same wonderful part of man's organization, *his hand*, and its exquisite touch, which formed the subject of one of the Bridgewater Treatises. Aristotle ascribed to the sensibilities of the hand, much of man's superiority over other animals, but he failed in his opportunity of making a wise theological application of this truth. His theology was not a branch of science which he pursued in a manner deserving of our commendation, although, strange to say, a portion of his works used to be read in the churches of Germany during the middle ages, instead of the Gospels! Luther said of him, "Whoever wishes to philosophize with Aristotle must first be stultified in Christ:"—and yet he was among the purest and most *moral* of ancient philosophers.

While I am on this subject, let me mention by the way, that Cuvier did honour, by his moral character, to the tendency of natural philosophy to purify the mind; but Buffon often disgraced himself and his pursuits by the worse than levity of his life and conversation. It is curious that in one respect there was a *resemblance* between Aristotle and Buffon,—each of these philosophers exposed himself to derision by his ridiculous fondness for dress.

But to return to the point from which I set out, the origin of

the study of Natural History. That Aristotle had a great share in drawing the mind closer to the contemplation of the mysteries of animate and inanimate nature, than was previously the case, is an undoubted fact. But with whom originated the study?

When Aristotle was charged, by envious contemporaries, with deriving some of his knowledge from Democritus, Empedocles, and Pythagoras, he admitted it. But whence had they their information? Pythagoras acknowledged that much of his *wisdom* came from Egypt and the East. Can we then discover vestiges of the science of Natural History in that region of the East where we should most wish to find it?—in the Holy Land? Yes: five or six hundred years before Pythagoras, Solomon “spake of trees, from the cedar-tree that is in Lebanon even unto the hyssop that springeth out of the wall: he spake also of beasts, and of fowl, and of creeping things, and of fishes.” (1 Kings, iv. 33.) Natural History therefore was cultivated in the Holy Land, where the oracles of Divine Revelation were preserved. The knowledge of the great Lawgiver of the Jews in that department of science must have been very considerable, to judge from his accurate acquaintance with the organization of animals. Witness his notices in the Book of Leviticus, of the characteristics, nature, and properties of animals.

Job, whose writings were collected by Moses, has left on record proofs of his familiarity with the kingdoms of nature. Antediluvian knowledge must have been more extensive than we are in the habit of considering, from the very fact of the long lives of the antediluvian patriarchs. Their opportunities of *observation*, through centuries of existence, gave them an advantage over all others of human kind who came after them. But another consideration adds weight to the conjecture I am venturing to submit to you. Many of them were enlightened, and directed to paths of wisdom, by the *All-wise Himself*. Adam could not have spoken any language had he not been taught by the *Creator*, and it is distinctly told us, that under the divine instruction, “Adam gave names to all cattle, and to the fowls of the air, and to every beast of the field.”

Every Hebrew word for a thing or person is a definition; every Hebrew name is a description; therefore we conclude that Adam was made acquainted by God Himself with the properties and nature of the animal kingdom, or he could not have given

names or descriptions to animals. From Adam, therefore, and the antediluvian patriarchs, we may believe that the elements of many of those sciences, which have since been more profoundly cultivated, were transmitted to after-ages, through the traditions which the survivors of the Flood handed down to their posterity. Job is supposed to have been contemporary with Abraham, Abraham conversed with Shem, Shem with Methuselah, and Methuselah with Adam. Astronomical science in particular was a tradition from the antediluvians; and if astronomical, why not other sciences? This is certain, that Aristotle received astronomical *observations* from Babylon, through those who accompanied Alexander on his eastern expedition, and most likely by order of Alexander. Those observations were said to have been made 1903 years before Alexander, *i. e.* about 2234 years before Christ. The Flood was 2349 years before Christ; consequently observations made 2234 years, or thereabouts, before Christ, were made 115 years after the Flood, while Noah and his three sons were yet alive.

With such facts as these,—tracing vestiges of the study of natural history to Solomon, Moses and Job, on the testimony of Holy Scripture, and tracing vestiges of the study of astronomical science to a period little more than a century after the Flood, on the evidence of profane writers, may we not delight ourselves, and improve ourselves, and solemnize our minds with the belief, that man was first directed to the contemplation of the mysteries of nature and aided therein by the Creator Himself, the Fountain of all wisdom and knowledge?

I have thus endeavoured to trace the study of Natural History to an impulsion, which I believe came *directly* from on High; and I have supported my arguments on the authority of that Book of Revelation, which becomes the more venerable in our eyes the more closely it is compared with the Book of Nature. There was a time in the last century, when smatterers in philosophy thought they found contradictions between statements in our holy volume and the investigations of science. The wiser inquirers of our day have declared, that the sacred text is confirmed by the discoveries of science. As science has been advancing, each new step has brought us back to the conviction, that the Word of God contains the elements of all knowledge, historical and philosophical as well as divine.

On Cist-vaens and Sepulchral Urns in a Tumulus or Barrow near Lesbury, Northumberland. By GEORGE TATE.

Read June 11, 1851.

IN November of last year, a Cist-vaen or stone chest, with an urn, was discovered by Mr. Thomas Crisp, of Hawkhill; and as I was present, on the following day, when others were opened, it may not be improper for me to describe them.

These remains of antiquity were found on the summit of a pretty high hill, about a quarter of a mile north from Lesbury, and near to the Newcastle and Berwick Railway. This hill is one of the elevations of the boulder formation, which modify, in a peculiar manner, the physical features of the eastern part of Northumberland; it commands a view of Alnmouth Bay, and of the Vale of the Aln with the Cheviots in the background. Five Cist-vaens have been opened, all differing from each other in size, and lying in different directions. They are, however, constructed in a similar manner: the clay subsoil has been hollowed out to the depth of from 2 to 4 feet; slabs of stone (generally four) are placed on edge against each other so as to form a quadrangular space; these are covered over with a larger slab, and, above this, large stones are heaped up to the height of more than 2 feet. The structure is simple and rude enough. No cement has been used; no ornament or inscription appears; and the only indications of the use of a tool are a very few marks on the covering slabs, similar to those made by a mason's pick. The slabs are irregularly bedded grey sandstones, such as are found *in situ* on the neighbouring coast; and the stones piled up to form the artificial tumulus or barrow, are the boulders of basalt, limestone, and sandstone, which occur abundantly in the boulder-clay deposit of the neighbourhood.

The ground-plan shows the relative position and sizes of the Cist-vaens. The largest (No. 1.) lies in the direction of W. 85° N. to E. 85° S.; its length internally is 5 feet 7 inches; its breadth at the west end 2 feet $8\frac{1}{2}$ inches, and at the east end 3 feet; the height of the side slabs is 4 feet. The covering slab was irregularly shaped, but somewhat quadrangular, measuring 6 feet 6 inches by 6 feet, and having a thickness of 4 inches; it would weigh upwards of 18 cwt. When opened this Cist was partly filled with water, and partly with a fine clayey soil, which in the course of centuries had been washed into it through the open joints. An urn was found in this Cist, placed on a flag on the north side (in the position marked) 18 inches from the west end.

The Cist (No. 2.) is very rudely constructed ; it is double, or divided by a flag into two compartments ; one being 3 feet 6 inches by 2 feet 3 inches, and the other 2 feet 6 inches by 2 feet : one large slab covers both. The general direction is from W. 85° S. to E. 85° N. In the south compartment the urn was found, 12 inches from the west end, as indicated in the plan.

The Cist (No. 3.) is 3 feet 6 inches by 1 foot 10 inches, and lies in the direction of S.W. by W. to N.E. by E. The Cist (No. 4.) is 1 foot 10 inches by 1 foot 4 inches, having a direction of N. to S. ; another small Cist (No. 5.) nearly adjoins this, and lies in the same direction. No urns were found in any of these, but several fragments of bones, in a decomposed state, were mixed with the clay ; one of them was recognised as a portion of a human rib.

Careful search was made in the clay, soil and gravel, but no coins or other remains of art were discovered.

The urns have been made of the clay which occurs in the neighbourhood ; and no great care has been taken in its preparation, for fragments of pebbles can be seen where the urns are fractured. They have evidently been baked in the fire : the exterior surfaces are red-brown, the interior is more or less black ; the exterior may be scratched with the nail, but the long action of water may have produced a softening, as the interior black portion is much harder.

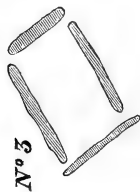
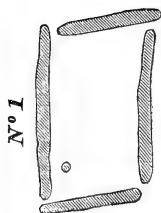
The urn (Plate V.) found in the largest Cist-vaen is harder, more brittle, and smoother on the surface than the other ; it has probably been fashioned with the lathe ; it is also more elegant in shape and elaborate in workmanship. Although broken on one side, enough remains to show its form and ornaments. It is tulip-shaped ; the height is 10 inches, the circumference at the base $9\frac{1}{2}$ inches, around the middle 19 inches, and at the top 22 inches. Without indicating much mechanical skill, the ornaments are effective, consisting of circles and zig-zag work impressed around the urn, by two very simple tools, one of them having ten square pointed teeth to the inch, and the other about three oval pointed teeth to the inch. The artist has used his humble mechanical appliances with taste ; the outline is graceful and the ornaments are not inelegantly arranged*.

The other urn is much ruder in form and workmanship. It is similar to those which have usually been found in

* By the kindness of the Rev. J. Hunter of Belford, I have received a fragment of an urn recently found in a Cist-vaen at Warrenton near to Belford, which is ornamented in a similar manner to the urn figured.

GROUND PLAN
OF
CIST-VAENS
AT
LESBURY.

Scale $\frac{1}{2}$ inch to 1 foot.



Cist-vaens. This was taken out unbroken ; the height is 5 inches, the circumference at the top 19 inches, and at the bottom 8 inches. As the surface is uneven, it has probably been fashioned with the hand. The impressions are only simple lines, which could have been made by any pointed object, when the clay was soft ; each series of lines is inclined to the other, forming that kind of ornament which resembles the "herring-bone."

In neither of the urns were bones observed. They were filled partly with water and partly with earthy matter, which, when dry, formed a brown powder ; other portions were black and apparently charred. Both urns were standing on their base, and not, as urns have been frequently observed in other places, with their mouths downward.

That these *Cist-vaens* are ancient graves, and that the urns contained the ashes of the dead, is, I think, unquestionable. In the smaller *Cists*, where bones were found, the entire body may have been entombed, with the knees and legs drawn up, this being one of the most ancient modes of interment among Scandinavian nations. The larger *Cists* are probably the graves of distinguished persons ; their bodies had been burnt and the ashes deposited in the urns. Two different modes of sepulture are here indicated to have been in use at the same period.

The different directions in which these graves lie, prove that they are the remains of a people inhabiting Britain previously to the introduction of Christianity. To the Romans they have sometimes been attributed ; but that people did not raise barrows or tumuli over their dead after the conquest of Britain ; their tombs displayed the architectural taste of a polished nation, and were entirely different from rude *Cist-vaens* ; their sepulchral urns were also more ornate and artistic than those found in *Cist-vaens*, and were generally either sculptured, or had inscriptions or epitaphs, or were painted and varnished.

To raise tumuli over the dead was a very ancient practice, and prevailed in several nations in the early stages of their history. In the Book of Joshua, in Homer, Virgil, Tacitus, and other ancient writers, reference is made to this mode of sepulture ; it was, however, most general, and continued longest, amongst the Teutonic and Celtic races, and to one or other of them must we refer the remains. In the early chronicles and annals of English history there is no record of the Saxons having adopted this mode of interment in England ; their coffins were generally made of wood. Nor is there evidence to show that the Danes constructed *Cist-vaens* and barrows in this country. Indeed they were not settled here so long, as to warrant us to suppose that they could have left memorials of their existence in so many parts of the island as those wherein barrows and

Cist-vaens have been discovered ; for not only in Northumberland, but also in Wiltshire, Dorsetshire, along the Welsh borders, and in Scotland, these relics of a distant age have been observed. These remains must, therefore, be referred to the ancient British.

Richard of Cirencester, in his account of the original inhabitants of Britain, says :—" Their interments were magnificent, and all things which they prized during life, even arms and animals, were thrown into the funeral pile ; *a heap of earth and turf formed the sepulchre.*" This description in its full extent may be more applicable to the inhabitants of the southern part of the island ; less magnificence would be displayed in Northumberland, where the people, more distant from the commerce and more civilized manners of the continent, were in a poorer and ruder condition. From a fragment of one of the British bards we are further informed that the British buried their dead *on the top of hills and lofty cliffs*, on declivities, in heaths and secluded valleys, on the banks and near the fords of rivers, and on the sea-shore, where the ninth wave breaks. In Northumberland, the ancient British graves have generally been on elevated ground. A few years ago an urn similar to our ruder one, and containing bones, was found on Abberwick Hill ; others have been discovered at Millfield Hill, Humbledon, Glanton, Threwitt, Warrenton,—all hills or high situations.

That the urns were of native manufacture, and not imported into the country by the Phœnicians is, I think, pretty certain, since the clay of which they are formed is the same as that which is abundant in the neighbourhood where they have been entombed. The people who constructed war-chariots were surely able to make coarse pottery ; in fact, the potter's art is one of the earliest cultivated ; it was even practised among the aboriginal inhabitants of North America.

No Roman coins or works of art have, as far as I can learn, been found in any Cist-vaen which has been examined ; it is, therefore, highly probable that these ancient British graves contain the remains of a people who lived anterior to the conquest of Britain by the Romans.

As suggestive for further researches it may not be useless to add, that the name *Lesbury* would lead us to expect that antiquities would be found in that neighbourhood ; since the word Barrow is derived from the Saxon Beorg, Borh, or Byrig, words applied to a town or fortress, a hill or a mound, and whence come the words Borough and Bury. Sir R. Hoare, who made careful and extensive investigation of ancient British remains, states, that " near to places terminating with ' bury ' I have almost invariably found some ancient camp, or earthenwork, which gave rise probably to the termination."

Notice of the Capture of Sericomyia borealis on one of the Cheviot Hills, in August 1850. By W. BAIRD, M.D., F.L.S.

ON the 14th of August last, while seated along with my brother, the Rev. John Baird of Yetholm, on a cairn of stones on the top of Kout's Nouth, one of the highest of the Yetholm range of the Cheviot Hills, we were simultaneously struck by a peculiar shrill musical sound proceeding apparently from amongst the loose stones scattered around the base of the cairn on which we sat. The note raised was loud and distinct, and clear as that of a musician's pitch-key. It was some time before we ascertained from whence the sound proceeded. At first the note was single; then two or three were heard ringing clear through the air, the sound being like that of a *precentor* striking his key-note with his pitch-key before he commences his tune. No other sound was heard on the solitary hill, and we might, with the aid of a little imagination, have easily supposed the music to come from the little elves or fairies that were said, in the *good old times* gone by, to have sported on our beautiful border hill-sides and peopled our romantic little dells. At last we observed some fine large flies hovering about the stones, and occasionally flying past us with a loud hum. Upon attentive examination we found that these flies were of two kinds; one large and of a uniform dark colour, the other distinguished by having its abdomen horizontally barred by several bands of a yellow colour. This banded variety particularly engaged our attention, and upon watching the motions of one of these we found that it darted past us very rapidly with a loud hum or buzzing noise, and then alighted gently upon the surface of a stone. Immediately it alighted it became apparently immoveable, and then the clear musical note burst forth, swelling on the ear in a remarkable manner. We discovered no motion in the creature when producing this music, though that might in part have been because of its shyness in allowing us to approach very near to it. As soon as we came close to its station on the stone, it darted off with a loud buzzing noise, totally different from the clear sonorous pipe it had been treating us to previously when at rest. This buzzing noise it continued while on the wing, but no sooner did it settle again upon a stone than the same clear musical sound once more streamed forth. Having no nets or means whereby we could capture a few specimens, we were long before we could secure an individual for examination. At last we succeeded in striking one down without killing it, and carried it home. It must have been injured however, for though it lived in a tumbler during the night, it died next morning, without our having been able to watch its movements or hear its song.

The day was very hot in the low ground, with bright sunshine;

but on the eminence where we found the fly, it was cool and comfortable. There were two cairns, one on the very summit of the hill, the other a little lower down. These flies were found by us on both the cairns, but nowhere else, though in our descent we kept a good look-out for them till we reached the base of the mountain.

The subject of this notice belongs to the genus *Sericomyia* of Meigen*, one of the family *Syrphidæ*, a family composed of various members of the genus *Musca* of Linnæus. A species of fly nearly resembling this was described by Linnæus in his 'Fauna Suecica' as an inhabitant of Lapland, and called by him *Musca lappona*. De Geer, a few years afterwards, figures what he considers the *Musca lappona* of Linnæus, and describes it at some length under the same name. More lately, Fallen in his 'Diptera Sueciæ' has noticed, as a native of Scania, the same fly figured by De Geer, and describes it with great circumstantiality. Linnæus describes his *Musca lappona* as having three white bands running across the abdomen. De Geer figures his with four, and describes them as yellow. Fallen retains the name of *lappona* for the fly with *three white bands*, and forms another species for the *four yellow-banded* variety. This he names *Syrphus borealis*, and in his distinction between the two species he is followed by Zetterstedt and succeeding entomologists. None of these authors, however, make any mention of its possessing the peculiar musical note when at rest I have described above; and perhaps this may be the first time it has been recorded.

Fallen in his 'Diptera Sueciæ,' Syrphici, p. 3, in describing the characters of the family, says: "flores sedulo visitant; imprimis in arbustis, et in pratis sylvaticis, uliginosis, *susurro pipiente*, velocissime sæpe volitant; interdum in aëre quasi pendentes, totam sylvam, æstate serena, *sono sibilante* implent." This is a totally different sound, however, from that I have taken notice of as only heard when the fly was *at rest* and not on the wing. Mr. Westwood, in his admirable 'Classification of Insects,' vol. ii. p. 557, in speaking of the same family, says: "They fly with amazing rapidity, and many delight to hover immoveably over certain spots, to which they will return, if disturbed, for a considerable number of times." He does not take notice of their possessing any peculiar sound; but in another passage in the same page, he says that he had observed, in experimenting upon the *buzzing* of some of these insects, "an organ not hitherto noticed, connected with the thoracic organs of respiration, and the instruments whereby the buzzing is produced; this consists

* Versuch. ein n. Gattung's d. Eur. zweifl. Ins. in Ill. Mag. 1803.

of a slender elongated filament clothed with very long and delicate hairs, fixed near the under side of the alula at its base, and at a little distance from the base of the balancer." It is perhaps in some such organ as this that we are to look for the origin of this musical pipe; a sound which, though not described by any author with regard to the *Syrphidæ*, one or two entomologists have informed me they have heard in other insects.

Order DIPTERA (*Aristotle, Linn., Latreille, &c.*).

Family SYRPHIDÆ (*Westwood, Macquart, &c.*). (Syrphici, *Fallen.*)

Genus SERICOMYIA (*Meigen, 1803; Latreille, 1806, &c.*).

Sp. SERICOMYIA BOREALIS.

SYN. *Musca lappona*, *De Geer* (not *Linn.*), *Mém. pour serv. à l'Hist. des Insectes*, vi. 141. no. 6. t. 8. f. 14 (1776).

Musca silens, *Harris, Exposition of English Insects*, p. 59. t. 15. f. 14 (1781).

Sericomyia lapponum, *Latreille, Gen. Crust. et Ins.* iv. 322 (1806).

Syrphus borealis, *Fallen, Dipt. Suec. Syrphici*, 20. no. 7 (1814-17).

Sericomyia borealis, *Meigen, Diptera*, iii. 343. no. 2. t. 31. f. 9 (1822); *Macquart, Hist. Nat. Dipt.* i. 496. no. 3 (1834); *Zetterstedt, Insecta Lapponica*, 590. no. 1 (1840); *Walker, List of Diptera in Brit. Mus.* 594 (1849).

Notes on some of the Mammalia and Birds found at St. Abb's Head. By ARCHIBALD HEPBURN.

ON the 20th of June last, accompanied by my friend Mr. Robert H. Broughton, I hired a boat at Coldingham shore, to visit St. Abb's, for the purpose of procuring specimens of birds, and making observations on their habits and distribution along the coast. Our intelligent boatman, Hugh Grant, communicated some of the following notices of the mammalia found about the Head, and which appear to possess some interest in a local point of view.

The otter (*Lutra vulgaris*) is pretty common on the sea-shore, his favourite retreats being amongst loose boulders and in rocky coves; and it would appear, from tracks on muddy ground, that they frequently travel overland from Pennywick to the Well-head Coves, which are situated at either extremity of the deep valley dividing the mass of rock composing the headland from the mainland. This animal frequently occurs on the wild coasts of Ireland, the Hebrides, and Western Highlands; and as for his

travelling propensities, I have occasionally heard of his capture at a distance from the Tyne in East Lothian, when journeying to the streams which drain the uplands of the county. An old trapper residing at Linton used to get one guinea per skin in winter, but at present the price is much lower; the traps were pitched on little banks of sand or mud by the brink of the stream, on which the footprints of the animal were visible.

Within the last thirty years the numbers of the fox (*Canis vulpes*) have been greatly reduced, but at that period they were so numerous and audacious as to cross the country in open day. Their approach to a farm onstead was notified by the poultry, which, with loud cries, sought refuge by retreating either to the yard or to the branches of some friendly tree; the fox was often seen to resort to the latter, and after vainly endeavouring to reach his prey, departed, after indulging in those feelings, which, I dare say, Æsop has interpreted with much truthfulness in his well-known fable. Lambs were frequently destroyed, so that it was necessary to watch them by night and by day; the shepherd hounded his dogs, and the farmer a brace of wire-haired greyhounds at the fox, and the latter generally fled towards his rocky home. Dogs brought up in the neighbourhood learned to approach the cliffs with due caution; but the county pack of foxhounds suffered so severely from the loss of the best dogs falling over the cliffs whilst in hot pursuit of their artful quarry, that the huntsmen purposely avoided drawing such covers as contained outlying foxes from St. Abb's Head. One of my farm servants, who spent part of his youth in that neighbourhood, once succeeded in cutting off a fox's retreat to the cliffs with a brace of shepherd's dogs, on which the former boldly dashed into the sea and swam for a distant point, but the dogs dragged him on shore and despatched him.

Our boatman Hugh Grant once procured a wild cat (*Felis catus*) when quite young, which resided five years in his house, and produced several litters of four and five each, but invariably deserted her family when they were four or five days old; she was a notable hunter, and although perfectly tame, showed great animosity on being irritated.

During snowy weather and high gales of wind, great numbers of hares (*Lepus timidus*) resort to the cliffs as well as to the more shelving parts of the coast, and repose on the stony beach just above high-water mark, even when it blows hard from the open sea.

Four pairs of the peregrine falcon (*Falco peregrinus*) breed on the coast of Berwickshire; one at Burnmouth, one at Pennywick Cove to the west of St. Abb's, one at Ernesheugh, and a fourth at Fast Castle, to which I may add two localities in East

Lothian, viz. the Bass Rock and the islet of Federa; a pair of young birds formerly sold for two guineas, but now they can be purchased for five or ten shillings. The kestrel and sparrowhawk were the only other birds of prey seen about the cliffs: the white-rumped swallow (*Hirundo urbica*) builds on the cliffs, as I have noticed elsewhere.

A solitary pair of ravens (*Corvus corax*), on Weston Thirl cliff, is the only representative of a once numerous and daring band of plunderers. Many years ago their depredations on the young lambs were so serious as to render their destruction a matter of great importance to the flock-masters; these birds used to watch for the birth of a lamb, and before the mother was able to attend to its safety, its eyes and tongue were pecked out, the umbilical cord was rudely seized, the intestines were thus uncoiled and dragged forth, and the little sufferer soon dropt to rise no more: such misdeeds have been attributed to the carrion crow (*Corvus corone*) by at least two authors*. The misdeeds of the ravens called down persecution: they were shot and trapped at all hands, and bold young men were lowered down the face of the cliffs by means of ropes to destroy their nests. It is curious to note the habits of birds in different districts: in the Hebrides, the raven feasts only on carrion; and "the shepherds and farmers, so far from molesting the ravens, are pleased when a pair of them breed on their ground, because they help to keep off the eagles†." Two or three pairs of ravens haunt the rocky islets off North Berwick.

Jackdaws (*C. monedula*) are very common about the cliffs, and along with the grey-backed crow (*C. cornix*), feed largely upon eggs; of the latter only two or three pairs frequent the cliffs; they may be seen about the upper waters of the Whitadder in summer; they are sparingly distributed along the shores of the Firth of Forth during the same season, but are common in winter: there are some old people who aver that these birds were once far more abundant in these parts than the carrion crow (*C. corone*). The interesting chough or red-legged crow (*Pyr-rhocorax graculus*) is now extinct, except a solitary pair, which I was informed seldom strayed far from Fast Castle, a few miles to the eastward of the Head.

The rock pipit (*Anthus aquaticus*, Bechst.) is common on the less abrupt precipices. The rock pigeon (*Columba livia*) is asserted to breed on this coast, their chief resorts being rocky caverns in East Harker's Cliff, and the coves of Harlaw and Pennywick; but in truth, they are only domestic pigeons which have become wild, and such as are to be met with in several

* MacGillivray in his Hist. of Brit. Birds, vol. i. p. 521, and Hogg in 'Zoologist,' vol. i. p. 304.

† MacGillivray's Brit. Birds, vol. i. p. 508.

places both in the interior and on the coast. Such is the opinion of Dr. Hood, Aimesfield, near Coldingham; and after examining a specimen shot by Mr. Broughton, and paying particular attention to the various parties of these birds which were observed, noting the dark, purple, and particolors which so much prevailed, I came to the same conclusion. The rock pigeon is the undoubted parent of our common house dove. Dr. MacGillivray, who has seen thousands of the former in the Hebrides, says, "I have not observed any remarkable variations of form or colour*." On similar and equally insufficient evidence it has been alleged that the rock pigeons bred on the Bass Rock, but from some unknown cause, no pigeons have bred there for ten or twelve years. The guillemot (*Uria troile*) breeds in countless thousands; ledge above ledge was crowded with birds sitting on their solitary egg laid on the bare rock, and at the report of a gun the birds would waddle to the edge: springing downwards with outstretched legs to break their fall, they sped away on rapid pinion to the open sea. On approaching the base of one of the stupendous cliffs, a large flock of these birds, which were reposing on a rocky shelf a foot or two above the water, dashed into the sea; some fluttered along the surface ere they acquired an impetus for flight; others swam about the boat in the most confiding manner, and delighted us all with their graceful movements, whether in play, or in capturing some kind of minute animal:—what a contrast to their awkward gait ashore! A few years ago, I captured a guillemot on Tyne Sands by cutting off his retreat from the water; then dismounting from my horse, I waited till he hobbled forwards and seized me by the foot. Although we could not distinguish the young birds on the rock, still their shrill squeaks were heard.

A fine specimen of the bridled guillemot (*Uria lacrymans*) was shot, and is now in Mr. Broughton's collection; our boatman said it was not common. Many naturalists still contend that this bird is only a variety of the last-mentioned species; amongst others I may mention Mr. John Wolley, who paid great attention to the subject when visiting the Faro Islands; and I presume his reasons would be embodied in a "Report" on the birds of those islands, read before the British Association in August last.

The razor-bill (*Alca torda*) is pretty common, but not nearly so abundant as I had anticipated from the numbers found on the Bass; indeed they did not appear to be so numerous as the herring gulls; they generally frequented loftier ledges than the guillemot cared to occupy, and that in little parties, separately or mixed with other species; and occasionally a solitary bird might be seen tenanting a snug cranny.

* History of British Birds, vol. i. p. 270.

The puffin (*Fratercula arctica*) is a very wary bird, seldom approaching within gunshot of a boat; they have been much persecuted by idle gunners, and now only about a dozen pairs annually build in crevices in the *Foule Carr*: the rocky isle of Federa, off North Berwick, is their chief resort on the southern shores of the Forth; a few pairs also haunt the Bass. It is in connection with the latter locality and the provincial name of *Tammie Norrie*, and in allusion to the grotesque appearance of the bird's face, that the following distich* has become "the peasant's heritage:"

"Tammie Norrie o' the Bass,
Canna kiss a young lass."

A few pairs of the green cormorant (*Phalacrocorax graculus*) haunt the coast, but the great cormorant is the most common. Taking advantage of the calm sea, the boat was poled into many a dark cave, where the blow with an oar on the boat's side sounded deep and hollow; but only one bird was heard to plunge into the water, and was seen to rise to the surface about two hundred yards out at sea. Fishing parties were seen off the Ernesheugh, and a female was driven from a bulky nest constructed of turf, grass and seaweed in a crevice in the Skelly Rock about fifty feet above the water; this is a very uncommon place for the nest, which is generally situated in caverns on this coast. These birds constantly haunt the brackish water at the mouth of the Tyne, and I have heard of their being shot about five miles up the stream.

The boatman informed me that a single pair of the great black-backed gull (*Larus marinus*) breeds annually on the Flood Carr adjoining the Skelly Rock. The Bass Rock can likewise boast of one or two pairs of these noble birds.

Next to the foolish guillemot, the kittiwake (*Larus tridactylus*) is by far the most numerous bird about the Head. Unlike the other species of gulls found here, they showed no preference for tufts of grass growing on the precipices, but built their nests in crevices, or on ledges of rock, sometimes solitary or in small colonies, which again were occasionally distinct from, and, at other times, intermingled with, the nests of the guillemot: this gull derives its name from its well-marked cry, *Kitty-week*, sharp stress being laid upon the last syllable when the bird is angry or alarmed.

Of all the birds which frequent these noble cliffs, the herring gull (*Larus argentatus*) attracts most attention: no sooner did our boat appear off their favourite coves, than their hoarse gut-

* It is believed that it first appeared in the appendix to the last edition of Mr. Robert Chambers' works, having been communicated by the writer.—A. H.

tural cackle resembling *kaak-ka-kaak*, varied only by a sharp loud scream like *pee-ul*, filled the air: some took to wing and hovered overhead in majestic sweeps; others leaving their nests crowned some distant pinnacle far beyond the reach of an ordinary charge, but not of the deadly wire cartridge, as three individuals found to their cost. The first to notify the appearance of danger, they are the last to indicate its disappearance. The naturally watchful habits of these birds seem to be increased during the breeding season; for often, when shooting on Tyne Sands in summer, I have been pursued by these birds with loud outcries, although they were four or five miles distant from the Bass, which is a favourite breeding-place; there they construct their bulky nests amongst the herbage, or in holes dug in the turf by the solan geese for building materials, whilst at St. Abb's they choose only those precipices which abound in fissures clothed with herbage, and it was on one of this sort, called the Chaunler Rock, that I observed three young birds as large as partridges running about the friendly covert: rocks of this kind are often accessible to the bold fisherman, who frequently takes both eggs and young ones amidst the loud outcries and threatening swoops of the parents. This bird is not unfrequently seen foraging in the interior of East Lothian, and fishing in the Tyne and other streams.

No common gulls (*Larus canus*) breed about the Head, but there is a most extensive colony on the Ernesheugh, about two miles to the westward; their nests are placed on the grassy ledges; and although these birds abound along the eastern shores of East Lothian and Berwickshire throughout the year, yet this is the only breeding-place known to me in the south-east of Scotland. During the greater part of the year these birds find their chief subsistence not only along shore, but also in the fields in the interior of the counties of Berwick and East Lothian. Dr. Hood, Aimesfield, near Coldingham, informed me that they do great injury to the turnip crop, especially during hard weather, and yet, judging by their droppings, such food is not readily digested by them. Similar complaints have been urged against them in Fife:—can it be that the draining and consequent amelioration of our climate and soil, and the more frequent stirring of the latter, have of late years induced a larger proportion of gulls to remain with us during winter than can possibly find a supply of food on our shores; and so, when the ordinary supply of worms and grubs is locked up by the frost, the famished birds resort to turnip-fields*?

* The changes which the tastes of some birds undergo are very remarkable: it is only within the last fifteen years or so that the rooks attacked the turnip-fields in this neighbourhood, and it is about forty or fifty years since red grouse were observed to eat oats. See Mag. Nat. Hist. New Series, vol. i. p. 118.

Short, and in some respects unsatisfactory as the foregoing remarks may prove, still the general result of the excursion, when taken in connection with what had previously been observed for the last twelve years along our shores and on the Bass, was very instructive. With a keen eye I scanned the lofty precipices, and the multitude of common and herring gulls which hurried to and fro; there, as on the Bass, I noted the great scarcity of young birds of the preceding year. Repeated littoral rambles and daily observations have now convinced me, that immediately after the breeding season the great majority of the young birds retire from Scotland, and do not return until they have assumed the adult plumage; and there are some reasons for supposing that the same remark is applicable to the young of the greater and *lesser black-backed gulls**.

It is for the pen of the geologist to describe the order of the rocks composing the headland,—how this has been upheaved and that depressed; to attempt to describe their scenic effect is beyond my power; but if I may be permitted to note some of the physical aspects of that coast, then must I confess, that as the boat swept onwards through narrow straits, and across rocky coves under the shadow of frowning crags towering in some parts to the height of about 300 feet, which for countless ages had opposed their eternal front to the angry waves of the German Ocean, the mind was filled with awe; and yet the waves were so gentle, that from out of the numerous long dark caverns by which the rock was pierced, there came forth a murmur, not of wrath, but of power; but when the tempest howls along the rugged shore, surely the terrible in nature must be realized! Wherever the fissures in the sloping rocks were filled with mould, grasses of sorts, sea-pink, rose-root, and *Silene maritima* waved in cheerful profusion, whilst the nakedness of some rocks was relieved by patches of *Ramelina*; and inside the Skelly Rock, the golden *Parmelia parietina* was distributed in linear patches, and that with a regularity which made me curious to ascertain its cause.

But it is the presence of those vast multitudes of sea-fowl which imparts life and animation to the scene, replete with busy and brooding love, ledge upon ledge, crevice upon crevice, peopled for a few short weeks by guillemots, razorbills and kittiwakes, whose ordinary home is the great deep. Thousands of rapid pinions beat the air with measured strokes as they hurry to and fro; the heavy-bodied species extend their legs, and then draw them up as they launch from the ledges, and they carefully ascend upwards to their nests so as to break the shock to

* The following species assume the adult plumage: *Larus marinus*, *L. fuscus* and *L. argentatus* in three years, *Larus canus* in two years. See Jenyns's Manual of Brit. Vert. An. pp. 275–278.

their short legs: high overhead wheel two or three noble herring gulls, others have chosen suitable pinnacles, and their loud challenge is in keeping with the hollow moanings of the guillemot and other choral cries, until a gun is fired, when all sounds are blended in wild confusion.

Notices of a Chantry in the Parochial Chapelry of Alnwick, dedicated to the Virgin Mary. Communicated by WILLIAM DICKSON of Alnwick and of Whitecross in Berwickshire.

“For though in feudal strife, a foe
Hath laid our Lady’s Chapel low,
Yet still, beneath the hallow’d soil,
The peasant rests him from his toil,
And dying, bids his bones be laid
Where erst his simple fathers pray’d.”—*Marmion*.

As one of the objects of our Club is to investigate the antiquities of Berwickshire and its vicinage, I presume to place upon the records a few notices of this Chantry, which have never appeared before the public in print. It is interesting to show the mode in which our ancestors lived and worshiped God; besides, it forms a link in the history of a county, and, aided by similar inquiries, becomes of great service to the future topographer.

By way of explanation I may observe, that a Chantry or Chauntry (Cantaria) is a small chapel or church, or private altar, in a cathedral or other public place of worship, with an endowment for one or more priests, on condition that they should *sing mass* and perform other divine services for the soul of the founder, and of such also of his descendants, or other relations, as he may have provided for by the grant.

A man might make a Chantry by licence of the King, without the Ordinary, for the Ordinary hath nothing to do therewith—as was the case with this Chantry. The main use and intent of these Chantries was, for prayers for souls departed, on a supposition of purgatory, and of being released from thence by masses satisfactory*.

* That they were used for other purposes, may be learned from an interesting passage in Shakspeare’s *Twelfth Night*:—

ACT 4. SCENE 3.—*Sebastian, Olivia, and the Priest.*

Olivia to Sebastian. If you mean well,
Now go with me, and with this holy man,
Into the *Chantry* by: there, before him
And underneath that consecrated roof,
Plight me the full assurance of your faith;
That my most jealous and too doubtful soul
May live at peace.

ACT 5. SCENE 1.

Olivia. Father, I charge thee by thy reverence,

These endowments were however effectually abolished by statutes, which not only rendered the holding of such property unlawful, but conferred the same upon the Crown (37 Hen. VIII. c. 4; 1 Ed. VI. c. 14; and 1 Eliz. c. 29).

The reason for the dissolution of Chantries is best shown by the preamble of the statute of Edward the Sixth, which is as follows:—

“The King’s most loving subjects, the Lords spiritual and temporal, and the Commons in this Parliament assembled, considering that a great part of superstition and error in Christian religion hath been brought into the minds and estimation of men, by reason of their ignorance of their very true and perfect salvation, through the death of Jesus Christ, and by devising and phantasing vaine opinions of purgatory, and masses satisfactory to be done for them which be departed; the which doctrine and vaine opinion by nothing more is maintained and upholden than by the abuse of Trentalls, Chauntries, and other provisions made for the continuance of the said blindness and ignorance: and further considering and understanding, that the alteration, change and amendment of the same, and converting to good and godly uses, as in erecting of Grammar Schools to the education of youth in virtue and godliness, and further augmenting the Universities, and better provision for the poor and needy, cannot in this present Parliament be provided and conveniently done, nor cannot nor ought to any other manner of person be committed, than to the King’s Highness, whose Majestie with and by the advice of his Highness’ most prudent Counsel, can and will, most wisely and beneficially, both for the honor of God and the weale of this His Majesty’s Realm, order, alter, convert, and dispose of the same.”

This was a Chantry in the Chapel of St. Michael in the parochial Chapelry of Alnwick, in the parish of Lesbury, in Northumberland, dedicated to the Virgin Mary. It was founded by Henry Earl of Northumberland, in the reign of Henry the Sixth, and the following translation of a Licence from the Crown will best show the reason and origin of its foundation.

Among the records in the custody of the Master of the Rolls pursuant to Statute 1 and 2 Vict. c. 94, and preserved in the Tower of London, (to wit) Patent Rolls, 26 Henry VI. part 2. Memb. 18, it is thus contained:—

“*L. Cantar. fundan⁸.*

Percy et Aliis.

“The King,—To all to whom, &c.—Greeting.—Know, that, of our special grace, we have granted and given licence, for us and our heirs, as much as

Here to unfold, what thou dost know,
Hath newly past between this youth and me.

Priest. A contract of eternal bond of love,
Confirm’d by mutual joinder of your hands,
Attested by the holy close of lips,
Strengthen’d by interchangement of your rings,
And all the ceremony of this compact,
Seal’d in my function, by my testimony.

in us is, to our dear Cousin Henry Earl of Northumberland, to the Rev. Father in Christ William Bishop of Lincoln, to our wellbeloved Henry Percy, Knight, Lord of Poynings, and John Lematon skilled in the Law, the three or two longest livers of them, to make, found and establish to the praise and glory of God, a certain Chauntry for ever, for two Chaplains, in Divine honor of the most Blessed and Glorious and Pure Virgin Mary, at the altar of the same Virgin, within the Chapel of St. Michael of Alnewicke, within the Diocese of Durham, to sing praises daily, unless a reasonable cause of excuse shall intervene, for our good condition whilst we live, and of the said Earl, Bishop, Henry and John and all others who, lands, tenements, rents or other possessions for the sustenance of the aforesaid Chantry, or of the Chaplain of the same, shall give or contribute, or otherwise who by any means shall lend a helping hand to the sustentation of the Chantry and Chaplains whilst they live, and for our soul and their souls when from this Light we shall have departed and they shall have departed, and for the souls of all the faithful. And for one of the said Chaplains to instruct poor boys in the art of Grammar gratis, and without occasion of money whatsoever, and to fulfil other works of piety, according to the orders of the said Earl, Bishop, Henry and John, the three or two longest livers of them in this behalf to be observed for ever.

“And that this Chantry, when it shall be so made, founded and established, shall be the Chantry of the Blessed Mary of Alnewicke, and all Chaplains of the same Chantry for the time being shall be called perpetual Chaplains of the same perpetual Chantry.

“And that the Chaplains of that Chantry, when it shall have been so made, founded and established, and their successors Chaplains of the same Chantry, by the name of the Chaplains of the Chantry of the Blessed Mary of Alnewicke, be persons competent in Law to prosecute and defend all actions personal, real and mixed, suits, complaints and demands in whatsoever Court and before whatsoever Justices and Judges spiritual and temporal, and that they may in the same answer and be answered, and be likewise persons capable and competent in Law to acquire lands, tenements, rents, reversions, services, and other possessions whatsoever.

“And that the Chaplains of the Chantry aforesaid who are to sing praises in the aforesaid Holy Chapel for the condition of the souls aforesaid, in the form aforesaid, to be named and deputed by the Burgesses of Alnewicke for the time being, immediately after the foundation of the aforesaid Chantry, to, shall be appointed by the aforesaid Earl of Northumberland and his heirs, and by him the Earl and his heirs whatsoever shall be presented to the Ordinary of that place, and that the said Chaplains coming in after such ceremony, by what fashion soever, and all and singular other the Chaplains of the Chantry aforesaid, shall be nominated to all and singular the premises on their parts in the same manner as it is permitted to be done and exercised by the aforesaid Burgesses for the time being and from time to time, and shall be presented by the aforesaid Earl and his heirs in the form aforesaid.

“And that the aforesaid Earl, Bishop, Henry and John, the three or two longest livers of them, may make and appoint lawful statutes and ordinances, for the perpetual establishment and good government of the aforesaid Chantry, according to the exigence of necessity lawfully and with impunity, without impediment, occasion, perturbation, or molestation of us or our heirs or any others whatsoever.

“And lastly, of our abundant grace, we have granted for us and our heirs, that when the said Chantry shall have been so made, founded and established, the Chaplains in that Chantry for the time being may acquire and enjoy, lands, tenements and rents to the value of forty pounds per annum

which shall not be held of us immediately in capite, or otherwise by military service, from any other person or persons, willing to give, grant or assign the same to them, to be had and held by them and their successors, Chaplains of the aforesaid Chantry, as well for the Exhibition in grammar of poor boys there as aforesaid, as for the maintenance of the said Chantry and support of the burdens necessarily belonging to the same Chantry, according to the ordinances of the Earl, Bishop, Henry and John, the three or two longest livers of them, as it is permitted to be done for ever.

“And likewise by the tenor of these presents we have given special licence, for any person or persons that he or they may give, grant, or assign in form aforesaid such lands, tenements and rents of the said annual value to the aforesaid Chaplains for the time being of the aforesaid Chantry as is aforesaid, so long as it be found by Inquisition duly taken and returned into the Chancery of us and of our heirs, that it may be done without hurt or prejudice of us or our heirs or others whatsoever, notwithstanding the Statute of Mortmain, except in those cases where express mention is made of other gifts and grants by us or any of our ancestors to the aforesaid Earl, Bishop, Henry and John or any of them in matters of small amount existing before the date of this Licence.

“In Testimony whereof we have caused these our letters to be made patent. Witness ourself, at Westminster, the 6th day of July, in the 26th year of our reign. [A.D. 1448.]

“By writ of Privy Seal and of the date aforesaid.”

This Henry Earl of Northumberland was the son of the valiant Hotspur; he held many high offices under the Crown, and was in great favour with King Henry VI.; he was killed at the battle of St. Albans, 23rd May, 33 Hen. VI. (1455), fighting in the army of that king. He was succeeded by his eldest son Henry, one of the parties named in the above Charter; he was summoned to Parliament in his father's lifetime as Lord de Poynings; his wife was Baroness Poynings Fitzpayne and Bryan in her own right, titles which have descended from her to His Grace the present Duke of Northumberland.

The Bishop named in the above Licence was William Alnewicke, formerly Archdeacon of Salisbury; he was made Bishop of Norwich 27th Feb. 1426—was Keeper of the Privy Seal—translated to Lincoln 19th Sept. 1436, and died 5th Dec. 1449. From his name being Alnewicke he was probably a native of that town, and so instrumental in the endowment of this Chantry.

This religious foundation seems to have been augmented from time to time by grants from pious individuals, and to have risen rapidly, as it only existed for about 100 years.

At the dissolution of Chantries in 1547 this Society possessed 44 burgages in various parts of the town of Alnwick, containing in all nearly 11 acres.

This is proved by the following extracts from an ancient Survey of the Borough Town of Alnwick, made in the time of King James I. (1624), and preserved in Alnwick Castle:—

Narrowgate Street.

A. R. P.

Matt ^w Jones holdeth a Burgage and Garth, late Anth ^y Hobwins, and before W ^m Grays, and before him Thomas Grays, late parcel of the possessions of the Chauntry of the Blessed Virgin Mary of Alnwick, by Fealty and suit of Court and other services ..	0	0	10
Hugh Arrowsmith holdeth a Burgage, late the Heirs of John Harrison, and sometime Roger Harrison, late belonging to the Chauntry of the Blessed Virgin of Alnwick	0	0	30
Robert Grey holdeth a Burgage, late W ^m Grey, his father before him, Sir Arthur Grey before Geo. Grey and before him W ^m Grey father to the said George, late belonging to the Chauntry of Alnwick.....	0	2	35

Bondgate.

John Clay holdeth a Burgage, Toft and Garth, late parcel of the Chauntry of Alnwick	0	0	15
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Common Lane and Town Wall.

Edward Fargus holdeth a Burgage, late belonging to the Chauntry of Alnwick	0	1	4
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Market-place.

Widdow Lidhouse holdeth there a Burgage late belonging to the Chauntry aforesaid	0	1	2
John Clarkson holdeth there a Burgage, late Rich ^d Clarkson, before Tho ^s Clarkson, and four Lands in the Alnwick way Quarter in Bondgate Field, parcel of the possessions of the Chauntry of Alnwick	1	1	32

Pakes Hoole.

Five Burgages late belonging to the said Chauntry	0	0	17
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Clayport Extra.

Three Burgages late belonging to the same Chauntry	0	2	31
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Clayport Infra.

Nicholas Farnham holdeth there one Burgage late belonging to the said Chauntry.....	0	0	27
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Finkle Street.

Two Burgages late belonging to the said Chauntry	0	0	2
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Common Lane.

Rob ^t Clarke holdeth two Burgages late belonging to the said Chauntry	0	2	28
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Pottergate.

Alex. Clarke and others hold there eleven Burgages late belonging to the said Chauntry	1	3	9
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Walkergate.

George Pawterson holdeth a Burgage late W ^m Greys, and before Ralph Grey, before James Phelips, parcel of the Chauntry of Alnwick	0	1	10
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	A.	R.	P.
Uswan Wood and others held there nine Burgages, also late parcel of the said Chauntry	2	0	26

Bayleygate.

Four Burgages late belonging to the said Chauntry	1	3	39
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In all forty-four Burgages and Lands, containing. Acres	10	3	37
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Amongst the Records of the late Court of Augmentations in the custody of the Master of the Rolls, under the Head of "*Certificates of Colleges and Chantries*," we find the following entry relating to this Chantry:—

Alnewyke.	{	Lands and possessions belonging to the use and stypend of two Priests; the one Master of a Grammer Scoole, and the other Master of a Synge Scoole w th in Alnewyke aforeseyd.	Willm Hudson and Thomas Thompson, bothe of 64 yeres of age, well learned, of honest conversation and qualyties. The said W ^m Hudson having one pencon of 100 shillings by the year, besyde his said stypend, the other having no other lyving but only the same stypend. And they keep two schooles, the one for grammer and the other for synge, to bring up Children in learning according to their Foundation, and there is no lande sold syth the 23rd of Nov., 38th Hen. VIII.	The yerely value of the said stypendarys as shall appear by the particular of the same. £12 13 4	Plate none.
				Whereof in decay yerely of the same £4 9 0	Goods none.
				And so remayneth clere.. £8 4 4	
			There is of Houseing people 1500 within the same parishe.		

We learn from this that the population of the parish was 1500 in 1547, or thereabouts; the population is now (1851) about 7000, being an average annual increase of 18.

As the 44 Burgages only produced a rental of £12 13s. 4d. in 1547, they must have been chiefly cottages and small properties, the average annual rental of each being under six shillings. After the dissolution these Burgages were granted away by the Crown by sale or otherwise, and now belong to various individuals.

The house where the two Chaplains lived was in Walkergate Street; it came into the hands of the Percy family, and it is sometimes called "Lady House" or "Chauntry House"; it is now a ruin, but the side walls are standing as well as the gable (Plate No. VII.), from which the style of architecture is shown. The rooms for living and sleeping may be conjectured, and are in some degree shown in the sketches No. VI. and No. VII.

The House consisted of two ends, each containing a kitchen below and a sleeping room above for each Chaplain to dwell in; and at the west end there seems to have been two separate rooms, one above the other; the one probably used as a school-room for instructing poor boys in the Art of Grammar gratis, as is mentioned in the endowment, and the other for a Singing School.

The fire-places are large, as in the case of old houses where wood was used for firing (Plate No. VII.).

The architecture has been of a collegiate and ornamental character, and the roof and joists of oak; some of the beams carved and beaded still remain.

The outside stairs, which existed in 1826 (Plate No. VI.) and for some years afterwards, have been removed; they were old, but were not considered originally to have formed part of the building.

From this House there was a footway leading direct to St. Michael's Chapel through the churchyard, which was legally closed a few years ago as unnecessary.

His Grace Algernon the present Duke of Northumberland, not willing that the building should be entirely swept away, means to preserve it, as far as is practicable, and to convert it to some useful purpose.

Thus I have traced this religious Institution from its foundation, through its palmy days, unto its present ruinous condition; and taking into consideration former events,—the founding and dissolution of these and similar religious establishments—how our kings took possession of them from time to time, and retained the revenues in their own hands—how all alien priories were seized by the Crown in the time of King Edward the First—how they were again suppressed in the time of King Henry the Fifth—how the endowments of the Knights of St. John were seized in very early times—how the monasteries were taken possession of by King Henry the Eighth, and all Chancies, Colleges, free Chapels, Fraternities and Guilds founded for superstitious purposes were suppressed;—it is impossible not to come to the conclusion, that if ever England should witness the establishment of such societies again and the amassing of property for such purposes, it will only afford another opportunity of doing that for which so many precedents already exist.

It may be noted here, in conclusion, that the old church of Alnwick is sometimes said to be dedicated to "*St. Mary and St. Michael*," and of late it has been called "*St. Mary's Church*." But this is erroneous: nothing proves the name of the Patron Saint more clearly than the time of celebrating the annual feast, which is held yearly on the first Sunday after the feast of St.

Michael (old style). It is curious to trace the connexion of the old parish feasts with the patron saint's day. These annual entertainments are held on the same day in every year from generation to generation. By this rule the patron saint of Alnwick is made out to be Saint Michael: in addition we find the effigies of that saint on the public buildings; one on St. Michael's Pant and another on the church well. We also find on the ancient seal of the old Saxon corporation of Alnwick the figure of St. Michael (Plate No. VI.). In the preceding Licence of King Henry the Sixth, the old church is expressly called "the Chapel of St. Michael." The confusion that Alnwick church is dedicated to "St. Mary," or "St. Mary and St. Michael," arises from the circumstance, that this Chantry, founded in the ancient chapel of St. Michael, was erected in honour of the Blessed Virgin.

W. D.



Seal of the Borough of Alnwick.

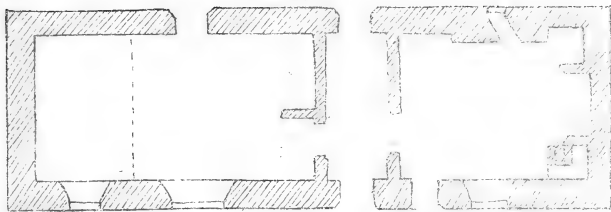


This drawing is copied from one in the Local Historian's Table Book for Northumberland Vol. IV p. 296. and represents the Chauntry House or Lady House, in Walkergate Street in Alnwick, as it was in the year 1826.





North.



Ground Plan of the Chauntry-

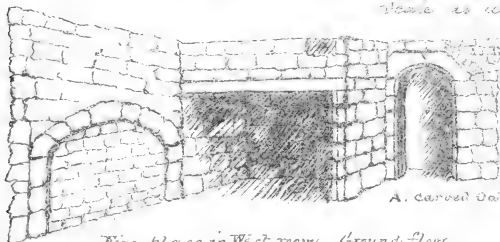
House, Walkergate, Alnwick-

Scale $\frac{1}{16}$ inch to a foot.



Front View.

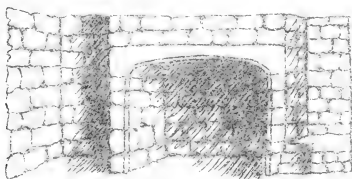
Scale as above.



A. Carved Oak Beam.

Fire place in West room - Ground floor.

Scale $\frac{1}{8}$ inch to a foot.



Fire place in East Room - Ground floor.

Scale as above.





ANCIENT BRITISH URN FOUND AT HAWKHILL.

HALF SIZE OF THE ORIGINAL.



PROCEEDINGS

OF THE

BERWICKSHIRE NATURALISTS' CLUB.

Address to the Members, delivered at the Anniversary Meeting held at Newtown, September 8th, 1852. By ROBERT HOME, Esq., President.

GENTLEMEN,

IT was to me an unpleasant surprise, that a person so incompetent either to take a useful part in your transactions, or to give a tolerable account of them, was, at our last Anniversary, appointed President. A fixed rule, it seems, forbade me to decline the honour; but I trust this year's experience will admonish the Club of the importance of making in future a better choice; for had I not been favoured by our Secretary and by Mr. Tate with their notes of the meetings, the address from the Chair, on the present occasion, would have been an entire failure.

The preceding Anniversary Meeting took place on the 3rd September, 1851. The place of the Meeting made it somewhat interesting; it was the birth-place of the Club twenty years before. This is the Secretary's note of it:—"Present—Rev. Dr. Gilly, President; Dr. Johnston, Secretary; Rev. J. Baird, Mr. Embleton, Mr. Selby, Rev. J. D. Clark, Mr. Home, Mr. Dick-

son, Mr. Broderick, Mr. Turnbull, Mr. John Turnbull, Dr. Hood, Rev. Mr. Darnell, and Rev. Mr. Rigge.

“The party was scattered into smaller companies by the different periods of arrival of their respective trains. One traced the whole extent of Blackburn-rigg Wood; and from its western end began their homeward course, following the Eye. In the wooded dean some rare plants were observed, viz. *Bromus giganteus*, a *Rubus*, as erect as the Rasp in its growth, *Polypodium phegopteris* and *P. dryopteris*, *Listera cordata*, *Trientalis europæus*, and a viviparous state of *Luzula pilosa*. In the Eye we noticed *Chara flexilis*; and in a pond adjacent the *Sium inundatum*.—Another party went the old and favourite walk through the Pease-dean to the seashore, without, however, having been able to detect any novel plant to create a surprise in those who had not accompanied them. They noticed *Centaurea nigra*, var. *pinnatifida*, *Aspidium angulare et lobatum*, *Atriplex rosea*, and *Ligusticum scoticum*. The *Pulmonaria maritima* was not to be seen this year. The adder and the blind-worm were seen; and the butterflies named *Hipparchia semele*, *H. ægeria*, *Polyommatus artaxerxes*, and *Lycene phleas*, were made captives to the butterfly-hunters.

“Concentrated at 4 at dinner, the party presented a compact force which the amply-furnished table could not resist. Fish and fowl, veal and mutton, and their vegetable garnitures, quickly melted away, and the tarts and pies appeared only to disappear with equal celerity. We have been sneered at by some sour scientifics for our evident enjoyment of our breakfasts and our dinners; but we can suffer the sneer so long as the meals are enjoyable, and hug ourselves complacently in the thought that our snarlers are at least not men of Taste. Well! Dinner done, and the toasts of the day duly drunk, the Rev. Dr. Gilly, President, read us his address, which was in all respects such a one as we might have looked for from a clergyman of his learning and character. He proposed that Mr. Home should be his successor in the presidential Chair,—a proposal which was unanimously confirmed.

“Hugh Taylor, Esq., William Forster, Esq., and William Dickson, jun., Esq., were proposed as new Members by Mr. Dickson: the nominations were seconded by Mr. Turnbull and placed on the Minutes.

“Mr. Broderick showed a specimen of a sand-martin, of a

uniform fawn or cream colour: it was this year's bird, and was shot by himself at Belford.

"Mr. Dickson read the paper, 'On a Chantry at Alnwick, dedicated to the Virgin,' which was published with last year's proceedings, illustrated with drawings and plans—and this concluded the day's proceedings."

The following incident is noticed, as a proof of the singular veneration which the disciples of Linnæus entertain for the Law-giver of their Science. The admirable Address of Dr. Gilly led to a conversation, in the course of which an imputation was cast on the character of Linnæus, as occasionally guilty of some coarseness and improprieties in his common conversation. This was a painful surprise to some of us, upon whom the great man's character had hitherto shone with unsullied brightness. But our Secretary at once started up, all in a glow with zeal and devotion, and, much to the satisfaction of the Members, vindicated the memory of their illustrious Founder, with a happy eloquence, and a minute knowledge of the facts, of which no other person present could, on the spur of the moment, have availed himself.

The next Meeting was on the 15th October last, at New Water-haugh. This is the Secretary's note of it:—"Present—Mr. Home, President; Dr. Johnston, Secretary; Mr. Embleton, Dr. Clarke, Mr. Broderick, Major Elliott, Mr. Clay, Mr. Tate, and Rev. Mr. Rigge. They were breakfasted by Mr. Clay, with a Club-like elegance and hospitality.—Hugh Taylor, Esq., William Forster, Esq., and William Dickson, jun., Esq., were admitted Members.

"The following were fixed upon as the places of meeting during the ensuing summer:—May, 3rd Wednesday, Wooler:—June, last Wednesday, Dunse:—August, 1st Wednesday, Longhoughton:—September, 2nd Wednesday, Newtown.

"Dr. Johnston read a paper by Mr. Hardy, 'On Mites as the cause of certain Vegetable Galls;' and 'On the phytivorous habits of some carnivorous Beetles.'—Mr. Tate exhibited some rare and interesting Fossils from Holy Island, pointing out their characters; and he also exhibited specimens of *Hieracium prenanthoides* and *Veronica officinalis* β . *humifusa*, which his son had

gathered on the Cheviots.—Dr. Johnston exhibited a drawing of the Sun-fish, taken from a specimen captured in Berwick Bay about a month before; and on the day of the Club's meeting a very fine specimen of the *Brama Raii* was procured from Burnmouth."

The next Meeting was held at Wooler, on the 19th May last. There is a double record of this meeting. This is the Secretary's note :—"Present—Mr. Home, President; Dr. Johnston, Secretary; Mr. Selby, Captain Carpenter, Dr. Clarke, Rev. J. Parker, Rev. J. Dixon Clark, Mr. Broderick, Rev. Geo. Walker, Mr. Gregson, Mr. Tate, and Rev. Mr. Rigge.

"The walk of one party was directed to Holmedon—to the Cleugh or hill above it—and thence to a hill on the north of it whose scarred sides held out some promise to the botanist;—and from this hill the party descended so as to enter on the head of the planted dean at the foot of which the onstead of Akeld is placed. From Akeld the party were led direct home to their Inn by the turnpike road.

"At Holmedon the corn-craik was heard uttering its peculiar cry for the first time this year by any of the party. The village was passed with some remarks as to its former fame and size. The latter is still indicated by heaving mounds, the remains of old walls now concealed by a close green sward. There is also the remnant of an old orchard; and the sites of houses of former days, wide apart from the present hovels, were revealed by certain plants which love a hidden ruin as well as doth the antiquary. The most marked of these were the wormwood and the feverfew (*Scottice*, 'Feather-foulzie'). Leaving the hamlet we commenced the ascent of the hill, which was done leisurely and without meeting with anything worthy of remark. The *Viola lutea* was the only plant seen of interest sufficient to mark its locality. On our descent on the north side a greater variety of plants were noticed, but none of any rarity. The *Oxalis acetosella*, *Orobis tuberosus*, *Stellaria holostea*, *Polygala vulgaris*, *Bartramia fontana*, *Hypnum dendroides*, *Vaccinium myrtillus*, and *Galium saxatile*, were gathered merely to make a nosegay to be admired and thrown away. On the stony side of the opposite hill there were several tufts of the broom in full bloom, and two or three bushes of *Rosa tomentosa*, and probably both plants had here attained their

highest limits on the Cheviots. No bramble ascends to this height. It was also observed that the only slug noticed on the hills was *Limax ater*, and the only snails *Helix nemoralis* and *H. alliaria*, and these were rare. But in the dean above Akeld we found also *Limax cinereus*, *arborum* and *fuscus*, with *Pupa muscorum*. The dean proved a rich botanical habitat; it is the best station I have yet seen in our district for *Geranium lucidum* and *Asplenium adiantum-nigrum*. There were likewise gathered in it, *Mercurialis perennis*, *Luzula sylvatica*, *Stellaria holostea*, *Cardamine amara*, *Chrysosplenium oppositifolium* et *alternifolium*, *Asperula odorata*, *Cardamine pratensis* et *sylvatica*, *Myosotis sylvatica*, *Geranium robertianum*, *Viola canina*, *Potentilla fragariastrum*, *Veronica serpyllifolia*, *Rubus macrophyllus* et *corylifolius*, *Rosa canina*, &c.

“Our homeward walk was much occupied with Holmedon and its battle, and with the notes of the various birds which attracted attention. It was noticed that there could be no doubt that this year the oak had decidedly anticipated the ash in putting forth its foliage; and this was hailed as an augury of a good harvest to come.

“I have omitted to mention the terraces on the hills we climbed, but they were not unnoticed; nor the remains of the British camps which encircle the summit of each. The terraces are conjectured to be roads leading from British settlements to the great temple of Druidical worship on Yeavinger; and at a period not remote, used by moss troopers, and still more recently by smugglers of whisky on their way to England. That they were so used is, I believe, well known. Their original object is entirely conjectural. Mr. Pennant gives the following account of them:—‘Observe on the right several very regular terraces cut on the face of a hill. They are most exactly formed, a little raised in the middle like a fine walk, and about 20 feet broad and of a very considerable length. In some places were three, in others five flights, placed one above the other, terminating exactly in a line at each end and most precisely finished. I am told that such tiers of terraces are not uncommon in these parts, where they are called *baulks*. Mr. Wallis conjectures them to be places for the militia to arrange themselves in time of war, that they might show themselves to advantage thus placed rank above rank. Mr. Gordon describes several which he saw in Scotland,

which he conjectures to have been Roman, and formed for itinerary encampments ; in my opinion a less satisfactory account. It appears more reasonable that they were designed for what Mr. Wallis imagines, as nothing could more highly gratify the pride of a chieftain's heart, in this warlike country, than to review at one glance his vassals placed so advantageously for that purpose.'—Tour in Scotland, 1772, p. 281.

"Dr. Johnston read a paper by Mr. Hardy, 'On an assemblage of Celtic sepulchral monuments in the East of Berwickshire.'—The following nominations for Membership were placed on the Minutes:—1. Rev. Geo. Selby Thompson, Vicar of Alnham—by Mr. Tate and Rev. Mr. Parker:—2. Sir John Marjoribanks, Bart.—by Rev. Mr. Fyler and Captain Carpenter:—3. Dr. Matt. Jas. Turnbull of Coldstream—by Captain Carpenter and Dr. Clarke:—4. Capt. the Hon. Frederick Gray—by Rev. Mr. Rigge and Mr. Tate."

This is Mr. Tate's note of the same Meeting:—

"My son and myself, on our way to the meeting, observed growing on the wayside near to West Bolton, *Doronicum pardalianches*. According to Gerard, this plant was gathered on the cold mountains in Northumberland by Dr. Penny more than 250 years ago. Although carefully sought for, it has not since been observed on these mountains. It has undoubtedly been introduced to its present locality.

"The highly picturesque dean at Roddam we examined, and found its geological structure as interesting as its external features are beautiful. One very rare plant we found—the *Orobis niger*, which, we believe, has not been recorded for any other locality in England; it was not however in flower. *Saxifraga granulata*, *Chrysosplenium alternifolium* and *Vicia sylvatica* are the only other plants noticed which are not common.

"Wooler, the place of meeting, is not devoid of geological interest; for here are seen, near to each other, the porphyry of the Cheviot range and the lower sandstone of the carboniferous formation. Our walk was chiefly along the boundary-line of these formations and up some of the gorges where the porphyry cliffs are exposed. Generally the porphyry is of a reddish colour, being composed of a compact felspar base, with numerous crystals of common and glassy felspar imbedded; occasionally a little

hornblende is intermixed with these minerals. Veins of calcareous spar not unfrequently pass through the rocks of this formation; and in some parts, as at Humbleton Mill, bright yellow crystals of sulphuret of iron have deluded the discoverers into the hope, that a Cheviot gold-mine was sparkling before their eyes. The porphyry terminates a little below Humbleton Mill.

“The carboniferous sandstone is seen on the banks of Wooler Water and at Wooler-haugh; it is fine-grained, rather soft, and of a reddish hue. It also forms the high grounds ranging along by Whitsun-bank towards the Till. At Wooler this sandstone is covered over with an accumulation of sand, clay and gravel. A section of these superficial deposits is exposed in Humbleton burn, where it consists of a deposit of gravel or small pebbles of porphyry, 6 feet; and a lower mass of sand and clay in which are imbedded large blocks of the red sandstone, with a few porphyry blocks, 20 feet. Sandstone blocks are not seen in the superficial covering over the porphyry. The facts noticed accord with what we have elsewhere remarked regarding the boulder formation of Northumberland—it has chiefly been derived from the breaking up of the rocks of the district; far-travelled blocks are the exception—not the rule.

“Nearly one mile west of Wooler, on the summit of Kettle-hill, we found a large Roman camp of quadrangular form and having four vallums on the north. It is called Greenside Camp, and sometimes Caunterdale. The hill rising steeply on all sides, the position must have been exceedingly strong. It commands an extensive prospect; all the prominent objects to the east and south being visible from it. Roman coins and a broken sword were found here some years ago. On the south extremity masses of porphyry are exposed in a cliff, which formerly bore a rude resemblance to a chair; it is now called ‘The King’s Chair;’ and tradition says that a king sat hereon, and, through an opening in the hills, beheld a battle fought on the lower grounds to the south.

“On the north side of Humbleton burn is a conical hill truncated at the top, and rising abruptly about 100 feet above the level of the burn; the slope, though considerable, is less steep on the other sides. This was one of the strongholds of the ancient Britons. A rampier (now obliterated) ran around that part of the hill not protected by the ravine of the burn. The summit of the

hill is 180 yards in circumference, having a hollow in the centre of the area; it is surrounded by a rampier of stone and earth, which is yet in some parts 3 feet high. This entrenchment is commonly called 'The Cup and Saucer Camp.' Another camp of a similar kind, but nearly obliterated, is seen on a hill half a mile to the north-east. But, indeed, almost every hill is crested with some remains of the aboriginal inhabitants of our country.

"A curious ancient custom is still observed in this neighbourhood. In the ravine at the base of Kettle-hill there is a well, which was formerly visited every May-day by both old and young. Into this well the pilgrims dropped a crooked pin, 'wishing a wish' at the same time, in the fond belief that before the year closed, the presiding fairy or genius of the well would cause the wish to be realized. The formal procession on May-day morning has for some time been discontinued, but the superstition still lingers on; for, at the present time, young people, whenever they pass the well, drop into it a crooked pin, and 'wish their wish.' Still some persons even advanced in life hesitatingly express a doubt about the virtue of the observance. We saw a number of crooked pins at the bottom of the well. The Rev. Mr. Rigge informs me that a similar custom is observed in Lancashire. A well springs out of the base of Humphrey's-Head, a promontory running into Morecomb Bay; it is called the 'Fairy's Well'—and formerly every passer-by cast a pin into it as an offering to propitiate the fairy who presides over the well—and the ceremony is still observed by the superstitious."

Mr. Tate intended to accompany this note by a paper on the Geology of Roddam dean. But to complete this paper it was necessary to revisit the dean. The elements (mayhap the fairy or genius of the dean) showed, however, a singular aversion to any further exploration into the records which nature has there left of her operations and exploits in the bygone ages. "Sir," (he writes) "eight years before, when making researches on Cheviot, I encountered near the summit the most fearful thunder-storm I ever witnessed; and this year having set off to Roddam dean, I was overtaken by that awful thunder-storm which lately did so much damage, and thus my further examination was cut short." After two such warnings, I would not be the man to urge Mr. Tate to make a third attempt.

The next Meeting was at Dunse, on the 30th day of June. At

breakfast only the President and Secretary and Mr. W. Dunlop attended. Dr. Hood was present at dinner. But we had as a visitor, Lieutenant Johnston, R.N., the only son of our Secretary, who has chosen a profession very opposite in its object to that of his father (the one intending to destroy men's lives, the other to save them) and has already distinguished himself in it—so that we may confidently expect him to earn a fame and success in his career not inferior to what his father has won in his more pleasing pursuits.

The following is the Secretary's note of this Meeting:—"On our way to Dunse the only noticeable thing was *Galium boreale*, seen in a ditch on the roadside near Edrom. The walk from Dunse to Polwarth was, botanically, very unproductive; and the fewness of the insects was remarkable enough. The limes at and about Langton House were principally *Tilia grandifolia*, whereas the fine avenue leading to Dunse Castle is bordered with a goodly row of *Tilia europæa* on each side. At the bridge over Langton burn we noticed *Barbarea vulgaris* and *Veronica anagallis*, growing in abundance and in full flower. At Choicelee we observed the hemlock in vigour and abundance, and we noticed it nowhere else during our walk, till, on our way home, it was seen again on the roadside near Dunse. I am persuaded the distribution of the hemlock is partial, and regulated by circumstances yet unascertained.

"The fine fertile landscape which lay before us, when looking down upon the Merse from Choicelee, is worth seeing:—and so we passed on to Polwarth. The poor houses—the undrained common—the ill-treated thorns—did no credit to the lord of the manor. We saw nothing in our walk from Polwarth to the church, but a manse out of place and out of proportion to the living. The church is worth notice.

"On our walk back to Dunse, I did not see a single plant of any rarity, with the exception of *Salix pentandra* at Chatterton Bridge.

"The very good dinner was worthy of the Club.

"Sir John Marjoribanks, Bart., Dr. Matt. James Turnbull, Rev. G. S. Thompson, and Captain the Hon. Frederick Grey, were admitted Members. No papers were read."

Though the day was, scientifically, barren, and it might seem, from the tone of the Secretary's note, as if he had been discon-

tented with it, I can attest that he enjoyed it exceedingly. The day was pleasant—one of that description when they who are abroad are disposed sincerely to pity the poor creatures confined at home—when we feel “it were an injury and sullenness against Nature not to go forth and see her riches, and partake in her rejoicings with heaven and earth.”

Choicelee is the “Chouselaw,” mentioned in vol. i. of our Transactions, p. 219, as famous for “as good cheese as ever was chewed wi chafts*.”

The common “green” at Polwarth is capable of being made highly ornamental; but the pigs and the geese have unstinted privilege over it, along with the donkeys; and it is uncomfortable and rough for lack of draining. The world-famous thorn fell at first glance from the height to which song and our fond fancies had before translated it. We saw three common-looking bushes, surrounded with an unseemly dwarf wall, which robs them of all rural grace, and at the same time suffocates them by the unchecked luxuriance of noisome weeds it encourages. Dr. Johnston has addressed a gentle remonstrance to Sir H. Hume Campbell on the subject, who has acknowledged its receipt, and, as we trust, will in due time correct the evils pointed out.

We found nothing worth adding to the traditions of the village, which Mr. Robert Chambers has so well collected in his ‘Picture of Scotland,’ vol. i. p. 37. The last couple that “danced about the thorn” on their marriage, fifty years since, had left the village last Whitsunday. The church, which is nearly a mile from the village, has a certain amenity about it not very common to parish churches in Scotland. The ivy which overgrows its southern wall has passed through the roof to the interior, so as to place the congregation under a graceful canopy of green leaves. Some ancient tombstones (one with the date of 1362 upon it), with long Latin eulogies upon former lords of Polwarth, have been built into the south wall; and beneath the church is the vault where Sir Patrick Home hid himself in the latter end of Charles the Second’s reign, and was stealthily and heroically fed by the charming Grizel Baillie, who was too young to enact the

* The saying as pronounced by the natives is, “There’s as gude *sheese* in *Shouseley* as ever was *showed* wi’ *shafts*.” The Borderers often transpose “sh” and “ch” just as cockneys do the “v” and “w.” “*Shop*” with them is “*chop*.” Some older people call “church” “*surch*.”

whole part of the Grecian daughter. Berwick-upon-Tweed was for many years the residence of Sir Patrick ; and he died there ; and his grandson represented the borough in Parliament ; and I feel a little sore at the rough way in which Mr. Macaulay* has handled one, who, for his name as well as for the town's sake, was

“ clarum et venerabile nomen

Gente mea, et multum nostræ quod proderat urbi.”

I console myself with the thought that the Whig historian scarcely does justice to any of the Scotch sufferers of the period, especially to those of any rank ; and that there are two ways of telling Sir Patrick's story. But the Club have nothing to do with this controversy.

The last Meeting was held at Longhoughton, on the 4th August last. The following is Mr. Tate's note of that Meeting :—
“ Present—Dr. Johnston (Secretary), Mr. Selby, Mr. Embleton, Rev. J. D. Clark, Mr. Broderick, Mr. Tate, Rev. George Rooke, Rev. Mr. Rigge, Captain the Hon. Frederick Grey, and Mr. William Grey.

“ After an excellent breakfast at the neat and comfortable Blue Bell Inn, the Members of the Club walked over to Howick Grange, where they were joined by the Hon. Mrs. Grey and Rev. H. Bell. Proceeding thence through the Howick grounds, they visited the church, which has recently been rebuilt, in the later Norman Gothic style, and having the chancel windows filled with beautiful designs in stained glass. Here is placed the elaborate monument, well-executed in Caen stone, to the memory of that distinguished statesman, Earl Grey, whose remains are interred in a vault below the church. The Members went from thence to Cullernose, and traversed the coast upwards of a mile, examining its geological features. Leaving the coast at the Burn-mouth, they then proceeded to Ratcheugh Crag, where they were much delighted with the extensive and picturesque view, and with the instructive geological facts which it presents.

“ Mr. Embleton noticed *Picris hieracioides* on the sea-walk near Howick, *Samolus valerandi* and *Carex vulpini* at Cullernose, and *Arabis hirsuta* on Ratcheugh Crag.

“ Mr. Selby mentioned that he had captured for the first time

* Macaulay's Hist. vol. i. p. 540.

Sesia fusiformis at Twizell, and he had procured a specimen of *Sirex gigas* at Warenford."

This ends the statement of our last year's Meetings; and I might here, with great propriety, have concluded my Address. But I recollect, in order to remind the Club of the fact, that it has now attained the completion of its twenty-first year, and has become, if the analogy with human life is to be kept up, more responsible to a wider public for its conduct. If my own attainments had not been so scanty, I have no doubt I might have seized this very appropriate opportunity to suggest some improvement both in its efforts and their objects. But, as it is, any I can make would be wanting in utility as well as in authority. As a humble learner, however, I may perhaps be allowed to put the following queries:—

Could not the communications on two distinct branches of knowledge be so managed that each might aid and throw light upon the other, and be shown to do so in the communications themselves? Are not geology and botany so related as to be rendered useful in this way to each other? I can conceive it possible—if not at present, yet at a more advanced stage in these studies—that on seeing a flower one may be able to tell not only the quality of the soil it grows upon, but what all the strata which intervene between it and the molten bowels of the earth consist of; and from thence to deduce other and better, or *the best* uses, social and economical, to which that portion of the surface of the globe might be applied.

Have we not been deficient in attention to the meteorology of the district? at least, since Mr. J. S. D. Selby left us? And is not this a matter of some consequence? At least it holds a conspicuous place in our motto—"Mare et Tellus, et, quod tegit omnia, *Cælum*."

Could we not usefully add statistics to our inquiries?

I congratulate you on the increased attention, by our Members and correspondents, to the cairns, barrows, sepulchral remains, and other antiquarian matters in the district. That kind of research has acquired fresh value from some recent highly-creditable attempts (by Dr. Daniel Wilson and others) to throw, by this means, greater light upon the successive races who have inhabited this island, and upon their varied habits and pursuits.

It may be sneeringly asked, "And of what importance, even when made, are such discoveries?" But the same sneer may be directed against the greater part of all other historical researches; and it may be met with the same answer. They relate to the natural history of man; and to us, whether as naturalists or human beings, that can never be foreign or uninteresting. This is the "*quid fuimus*" which leads to the "*quod futuri gignimur*." It occurred to me, on the 19th May last, when on the hill of "the Cup and Saucer Camp," mentioned by Mr. Tate, that the top of it had been the usual summer residence of some of the aboriginal race, at a time when Milfield Plain was either a lake, or covered with one thick and tangled forest; which encroached to near the very summit of that hill and of all the others in the neighbourhood; and was then infested with ferocious animals or dangerous reptiles. This hill had been selected because its naked and half-famished occupants could best descry from it any approaching danger; and when that came, could there best defend themselves against it: for these earliest specimens of humanity (like the martyrs of our species) "*wandered about in wolf-skins and elk-skins—being destitute, afflicted, tormented—flitting from deserts to mountains, and into dens and caves of the earth.*" "The Cup" was intended for the chiefs of the clan, "the Saucer" for the multitude; and no doubt they needed to fortify their residence by the stony munitions we noticed; for see! a band of hostile savages, probably of fresh invaders, and of a different race, occupy a hill at no great distance; and these will not leave the aboriginals long unmolested. It is easy to fancy the rest—the stealthy nocturnal approach—the sudden attack—the fierce struggle—the rampart forced—and the final massacre.

" they roll

Mothers with infants down the rocks; their moans
The vales redouble to the hills, and they
To heaven."

Looking upon the scene which the summit of that hill now presents, and upon the Members of the Club around me, I could not help asking myself, "What has caused the difference between that pre-historic period and our own times? and will not the causes that have produced that difference, acting with increasing momentum amid greater facilities, at last bring on an

æra when our posterity will look back upon us with as great wonder as we do upon our barbarous predecessors?"

At the close of several of the Addresses of my predecessors in office, I have observed something like an apology for the small performances of the Club during the antecedent year. I confess I do not feel disposed to view the labours of my Fellow-Members hitherto with any other than grateful emotions. The least important of these labours—the noting of the names and habitats of plants and insects—may seem easy; but to do it to purpose requires observation and attainments which few possess; and it should be remembered, that to "name the animals" was one of the first tasks assigned to man by his Maker, as an element of his intended dominion over them*. While humbly following this high precedent, our Members, as we see, have not neglected other collateral branches of science. And in carefully laying up a store of facts and observations from our own district, we are performing a function of which a coming age may reap some advantage. We may be supplying helps to we know not what future triumphs of intellect! We may be adding one stone to the bridge which is hereafter to span a gulf now separating different sciences; or paving a small portion of the road that leads to the metropolis of universal knowledge; or laying a step on which higher and higher generalization shall culminate at last to a point from whence may be scaled the highest heaven of science! "The vultures which bask one above another in the heights of the air, observe and follow the flight of those below; and thus appear, as if by enchantment, at once upon the field of action."—Douglas, *Advancement of Society*, p. 131.

* The discovery of them can be recorded only by "naming" them, and the progress this has lately made is extraordinary. Linnæus, in 1735, could only name 47 genera and 117 species of birds; all that he, "the lynx-eyed," had then discovered. Now, the Grays and the Goulds name 800 genera and 7000 species.

Sketch of the Geology of the Howick Coast and Ratcheugh Crag, visited by the Club on the 4th of August, 1852. By GEORGE TATE, F.G.S.

THE geological features of the coast from Cullernose to Howick Burn and of Ratcheugh, which were this day examined by the Club, are entitled to more than a passing notice; for there is no part of the country which presents, within so limited an area, a greater number of important and interesting geological phenomena.

A cliff, facing the sea, extends from Cullernose on the north to Howick Burn, varying in height from 20 to 120 feet. The rocks are limestone, shale, coal, and sandstone, belonging to the carboniferous formation, intersected by basaltic and claydikes, and covered over, in one part, with a great overflow of basalt. Cullernose is the southern termination on the coast of this overflow, and rises in majestic columns of basalt from the sea to the height of upwards of 100 feet. The name seems descriptive of its high, exposed situation; Nose, Ness, and Naise indicating a promontory or cape, and Culler being probably another form of Caller, used in Northumberland and Scotland to express such an amount of cold as would be experienced when a strong wind is blowing over high ground. A gritty sandstone is visible at low water underlying this basalt, which along with the stratified rocks dip towards the north-east. Basalt extends along the iron-bound coast northward to Dunstanborough, where it forms another lofty cliff, under which the sandstones, coal, shale, and limestone are again found. Sandstones and shales, torn from their beds by the volcanic outburst, are mingled in a confused mass with basalt on the south side of Cullernose. Limestones and calcareous shales pass under the sandstone; they are much contorted, and undulate in a succession of ridges and hollows along the shore. These beds contain an abundance of remains of marine animals. In the calcareous shales, which are similar in mineral character and organic contents to the "Calp" in Ireland, there are many fossils, several of them being coated over with iron pyrites, or sulphuret of iron; when recently washed by the tide, the dark grey rocks seem studded with golden ornaments. The following are some of the fossils which have been found, and will give an idea of the fauna of this ancient sea: viz.—

Cyathophyllum fungites.
Cyathaxonia costata, M'Coy.
Glauconome pluma, Phil.
 — *pulcherrima, M'Coy.*
Fenestella membranacea, Phil.
 — *undulata, Phil.*

Fenestella plebeia, M'Coy.
Cyathocrinus planus, Miller.
Serpulites membranaceus, M'Coy.
Phillipsia mucronata, M'Coy; the trilobed tails are abundant; occasionally portions of the head and

shield are found ; and I have specimens showing the reticulated structure of the eye of this Trilobite.

Nucula gibbosa, Flem.

Leda attenuata, Flem.

Solemya primæva, Phil.

Chonetes Hardrensis, Phil.

Lingula elliptica, Phil.

—— *marginata, Phil.*

Orbicula —— ?

Orthis arachnoidea, Phil.

—— *Michelini, Léov.*

—— *resupinata, Phil.*

Productus fimbriatus, Sow.

—— *Flemingii, Sow.*

—— *giganteus, Sow.*

—— *semireticulatus, Martin.*

Spirifer glaber, Sow.

—— *trigonalis, Sow.*

—— *Urii, Flem.*

Reticularia lineata, M^cCoy.

Euomphalus carbonarius, Sow.

Murchisonia elongata, Port.

—— *quadricarinata, M^cCoy.*

Pleurotomaria atomaria, Phil.

Bellerophon striatus, Flem.

&c.

A white flaggy sandstone underlies these calcareous beds, and contains a remarkable vermiform fossil, the nature of which has not yet been satisfactorily determined.

The limestone and sandstone beds are cut through, nearly perpendicularly, by a small basaltic dike, which runs from the shore into the sea in a perfectly straight direction, east 50° north. It is only 4 feet wide ; but standing above the stratified beds, and appearing like a wall built up by human hands, it is a singular and interesting object. The adjacent beds are not affected by it, either in position or structure.

Proceeding southward, arenaceous shales with ironstone nodules, thick beds of blue limestone, and another stratum of "Calp" rise out from beneath the flaggy sandstone. But nearly opposite to Howick village, these beds are cut off, by a great fault, which has rent the beds and considerably altered their position. This fault "hades" or slopes to the south, and the strata on the north side have been thrown up ; it is filled partly with shattered fragments of limestone and calp and with basalt ; it is in fact a small vein containing, mixed with the veinstones, galena or sulphuret of lead. It runs in the direction of east by north ; and as a lead-mine was formerly worked at Little Houghton, both are probably parts of the same vein. This great rent in the earth's surface appears to be the result of the volcanic outbursts, which threw up from the molten depths, the basalts spread over the eastern part of the district ; for there is a mass of amorphous basalt in this vein, connected with a stratum of basalt forced in between the limestone and sandstone on the north side of the dike, the sandstone being in a shivered and indurated state. In the basaltic mass, small but fine crystals of quartz, some of them amethystine, have been found.

On both sides, the beds rise towards the fault ; on the north side the dip is at a high angle to the N.E. ; but on the south side it is E.S.E. The series of beds is also different ; for, on the south side neither the limestone nor the calp appears. From this point

onward to Howick Burn, there are sandstones of great thickness, arenaceous and carbonaceous shales, and beds of coal, in which are well-preserved and characteristic specimens of the carboniferous flora. Several of the sandstone layers exhibit well-defined ripple-marks. Although these beds are of great thickness, the only calcareous strata are a very impure buff limestone of one foot thick, with a coarse plate-bed holding calcareous matter; both containing marine fossils, among which are *Pinna flabelliformis*, Martin, which is seldom found in Northumberland, and the very rare *Echinocrinus Uriei*, Flem.: both the plates and the long muricated spines of this Echinoderm are found south of the Burn.

Near to the Howick Boat-house, the high tide in 1849 laid bare a submarine forest, giving evidence of a change of level in the coast within a comparatively recent period. This forest consisted of a number of oak, fir, alder, and hazel trees, some lying prostrate, and others still rooted and having short upright stems; hazel nuts were also found: these vegetables were imbedded in peat. Similar forests, extending into the sea, have been observed at various parts of the eastern coast. I have seen them at Newton by the Sea, and at Hartlepool, where a six-feet deposit of vegetable matter is covered over with a large accumulation of recent marine shells.

Leaving the coast and passing by a circular British camp cresting the hill near the mouth of Howick Burn, the members of the Club wended their way to Ratcheugh Crag, which is two miles to the south-west. This crag is part of a range of basaltic eminences running inland from Cullernose; it commands an extensive prospect along the coast, up the vale of the Aln, and onward to the Cheviot Hills. With a slope to the east, it presents a bold cliff face to the west, formed of huge basaltic columns capped with beds of carboniferous limestone, which on the slope of the hill is covered by a metamorphic shale containing the same fossils as those found in the "Calp" at Howick. At Snableazes, about 300 yards to the south, is another basaltic eminence, having *beneath* it a metamorphic shale identical with that on the slope of Ratcheugh, beds of blue limestone, and a thin stratum of basalt. The basalt dips with the other beds generally south-east 15° , subject however to undulations; and as the Snableazes quarry is nearly in the line of dip, and as, moreover, the shales in both localities are the same, I consider the thin stratum of basalt a continuation of that at Ratcheugh, which therefore seems to be of very irregular thickness and to have a wedge form. Connecting the two localities, the succession of the beds is as follows, commencing with the uppermost: viz.—

	Feet.
1. Columnar basalt at Snableazes	64
2. Metamorphic shale, with <i>Phillipsia mucronata</i> , &c.....	7
3. Limestone, with encrinal stems and mountain limestone fossils.	14
4. Basalt, columnar at Ratcheugh, where it is 80 feet in height, but thinning out, and stratiform at Snableazes, where it is only	2

Below this are shales, sandstone, coal, and other limestones.

Although the phenomena described have a bearing on the question, I do not attempt at present to discuss, whether these basalts have been overflows, taking place while the carboniferous beds were in course of deposition, or dikes injected laterally amongst them subsequently to that period. The marked effect of the intrusion of basalt on the sedimentary strata may, however, be noticed. Some of the limestones *above* the basalt at Ratcheugh have been changed into granular marble; the shales *below* the Dunsheugh basalt are converted into porcelain jasper, and where in direct contact with it, into a black mineral, with a conchoidal fracture similar to Lydian stone. When the basalt above the shale is thin, organic remains are found; but where there is a considerable mass, the organisms have been completely obliterated.

Nearly one quarter of a mile south of Dunsheugh, a limestone quarry is on Hawkhill Farm. A tough, red clay, with some large and many small boulder stones scattered through it, overlies this limestone. The surface immediately below this clay is polished, scratched, and grooved, the limestone is bright and smooth like that of marble artificially polished, and the scratches and grooves have a general direction of from north to south. As the quarry is not at present worked, the members of the Club, when visiting it, could not obtain a complete idea of the phenomena presented when a large area had been laid bare. The facts, however, were carefully noted three years ago, and a description given in a paper published in the first volume of the 'Transactions of the Tyne-side Naturalists,' where these polished and scratched rocks are viewed in connection with the Boulder formation in Northumberland.

Notice of Asplenium germanicum. By GEO. R. TATE, Alnwick.

THIS rare fern I have, this month, discovered on the basalt at Kylloe Crags, Northumberland; and as it has not been observed before in England, a brief notice of its characters and distribution may not be unacceptable.

ASPENIUM GERMANICUM, Weiss. Fronds linear-lanceolate; pinnules alternate, narrow wedge-shaped, notched at the top,

the lowermost ternate; indusium entire along the margin. Fronds from 2 to 3 inches high.—*Asplenium Breynii*, Retz. *Asplenium alternifolium*, Wulfen. *Amesium germanicum*, Newman. *Scolopendrium alternifolium*, Roth.

This fern is distinguished from *Asplenium Ruta-muraria*, to which it is most allied, by its simpler form, by its narrower wedge-shaped pinnules, and by its indusium not being jagged along the margin.

It is recorded from near Kelso, Perth and Dunkeld, and also from Caernarvonshire in Wales. It was first found by Breynius near Langen-Schwalbach, and since then in some other parts of the Continent.

Asplenium germanicum appears to me a distinct species. If it were merely a variety of *Asplenium Ruta-muraria*, we should naturally expect to find the latter growing in the same locality; this fern, however, has never been found on the Crags or in their vicinity. The other *Aspleniums* occurring at Kyloe, viz. *A. septentrionale*, *A. adiantum nigrum*, and *A. trichomanes*, bear little or no resemblance to *Asplenium germanicum*.

Alnwick, Aug. 28, 1852.

An Account of an Assemblage of Ancient Sepulchral Monuments, in the East of Berwickshire. By MR. JAMES HARDY.

“The dismal efforts, which in the earliest periods, and in the first inhabited parts of the world, were exerted, to cause *human greatness*, if possible, to survive its certain wreck.”—KING’S *Munimenta Antiqua*, i. 269.

“A barbarous age is unfriendly to human fame. When the clods of his hillock are scattered, or his funeral stones are thrown down, the glory of a savage perishes for ever.”—TURNER’S *Hist. of the Anglo-Saxons*, i. 182.

“History, not wanted yet,
Lean’d on her elbow, watching Time, whose course,
Eventful, should supply her with a theme.”—COWPER.

THE east of Berwickshire, like the other Border districts, till the extension of agriculture within recent times, presented numerous memorials of the ancient population. These consisted chiefly of their ring fortlets or chesters, and their sepulchral barrows or cairns. These appear to have been often associated together, in the manner of our villages and churchyards; the one as the chief residence of the living, the other as the mausolea of the dead. A conspicuous assemblage of these primitive monuments existed till of late years on the immediate confines of the western boundary of the parishes of Coldingham and Cockburnspath. One of the most noted, as being situated on a hill, was called St. David’s Cairn; a name derived from David I., a liberal patron

of the religious house of Coldingham. Being a landmark, it was always regarded with the interest attached to a remarkable feature of the landscape; an interest which its mysterious history heightened, seeing that the remains of a potent king or warrior might have been entombed beneath it. But these proved but ineffectual barriers to repel modern curiosity in the first instance; and the demands of rural requirement after its sanctity had been violated. This event happened in 1829, when workmen were employed to effect an entrance to its centre, with the view of ascertaining what it contained. On removing the stones, they came to what appeared to be a grave, which was placed east and west; but all vestiges of humanity had disappeared in the lapse of time, and there remained only a portion of black earth to relate the story. The stones were finally carted off, to be applied to the agricultural purposes of the farm on which it stood. It occupied a space in diameter about 70 feet, or about 427½ square yards. Its height may have been 9 or 10 feet in the centre; but where it expanded outwardly at the base, it was of no great depth. Other two large cairns, of nearly similar form, and scarcely smaller dimensions, lay in a hollow to the north, and at a very short distance from it. They had every appearance of having remained untouched from the most remote antiquity. They were removed in the course of cultivation, and applied to the same uses as their principal. One of them was encircled with a rude stone wall, either for protection, or as supplying the means of additional sanctity. Besides these, the adjoining moor was strewn with tumuli of various dimensions, the least containing from two to three cart-loads of stones. About thirty may still be reckoned, but they are but a scantling of the original number. They are mere rounded conical eminences, overgrown with heath or long grass, with lichen-covered or white bleached stones* peering through. Tradition tells that they were put together by "little strong men," called "Pechs†." This is so far correct, if we regard the name "Pechs," as one applied indiscriminately to

* A moist peaty soil has the effect of externally whitening the greywacke stones enclosed in it, probably by extracting the iron combined with them.

† This belief is far from being a local one. Sir James Foulis remarks, that in several parts of the Highlands he observed heaths, from which it appeared the stones had been carefully gathered off; and upon inquiry of the neighbouring peasants, he was told that it was believed the Pechs had carried off the stones for the convenience of mowing the heather. (*Trans. Soc. Antiq. Scot.* i. 19.) The same tradition is repeated by Heron, in his *Journey through Scotland*, ii. 302, 303. On the moors of Northumberland, such heaps are pointed out as places where a Pict's apron-string had broken, as he was carrying a load of stones to some of his superhuman erections. (*Rambles in Northumberland*, 104.)

any of the original native tribes*; and affords an indication that they belong to a class of antiquities, unconnected with the present Saxon population, and placed beyond the æra of their traditional reminiscences. As they lie in close proximity to the cairns, and afford in the slabbed coffin of some of the larger heaps, evidences of a common origin and object, we cannot look upon them in any other view than as sepulchral. In the whole group combined, there is doubtless before us here the burial-place of a numerous race of men, where the prince lies undistinguishable from the peasant only by the height of his heap; the one indeed dignified with a rude coffin, the other committed to the bare earth; but both equal at last, in the impenetrable oblivion entailed on all such modes of commemoration.

Another of these heaps, that rose to the dignity of having a name, was called *Craw's Cairn*, of which the last vestiges disappeared in 1823. Report speaks of an urn having been found in it, about the commencement of the century. This is not improbable, since this mode of sepulture has been observed in various instances within the immediate vicinity. On the 11th of May, 1825, an urn was turned up by the plough, under some small heaps of stones, near Bankhouse. Another was found in 1830, at the foot of Penmanshiel Wood, nearly in a line with the cairn, and not more than a quarter of a mile from it, and at no great distance from some old "camps" that once existed on Bushiel Farm; and a third was found, May 23rd, 1844, above Aikieside, on the farm of Aldcambus Townhead, someway near the site assigned by tradition to a small fortified circlet. The first is now in the possession of Sir Samuel Stirling, of Glorat and Renton; a portion of the second is in my possession; and the third is preserved by Mr. Hood, the tenant of the farm on which it was discovered. The urns were of a primitive sort, of native manufacture, from the "ha'" or ochrey clay of the ditches. They had originally been baked in a fire, being of a dun colour without, but black internally; an appearance assumed by the clay of which they had been fabricated, when it is heated for a short time in an open fire. The patterns were nearly uniform. The one in possession of Mr. Hood is one foot in diameter at the mouth, and as much in depth, and from 3 feet 4 inches to 3 feet 6 inches in circumference at the greatest girth. The lip or brim is about an inch wide, and has a single row of herring-bone ornament. The lip projects exteriorly like a rim; and beneath it there are other two elevated encircling ridges, with slightly depressed intervals, ornamented

* The country from Leeds westward, over great part of Lancashire, was thickly populated in the Saxon times by Cymry, whom old authors call indifferently Britons, Picts, Wallenses, and Galwegenses. (Hodgson's Hist. of Northumberland, Part II. vol. iii. 22.)

by about five rows of the usual herring-bone indentations*. The girth is nearly uniform from the mouth to the second ridge; after which the urn suddenly slopes, and narrows in a conical manner. The bottom was fractured by the plough striking on it, it being the part that was uppermost, the mouth having been applied to the ground. It contained only ashes and calcined bones, of which a fragment of a rib was still entire†. These urns were, in all likelihood, of a kind *sui generis*, peculiar to the race that used them, without being, as has been supposed, borrowed by imitation from the Romans, whose footing in the district appears never to have been so permanent as to induce the inhabitants to adopt changes in customs so tenaciously held, as those that respect the obsequies for the dead, united as they were with religious rites and scruples, with which the Romans rarely interfered. We know that in Cæsar's time, cremation of the dead was customary among the Gauls, who were in many respects at one with the Britons in their customs and observances‡; and this mode of sepulture is found to have been practised in remote parts of the Highlands, to which the Roman invader never had access§. It is also worthy of remark, that the urns were placed, as the want of a base in the bottom part indicates, in a reversed position. In this respect they agree with those "sundrie earthen pots" found in Anglesea, mentioned by Harrison, which were "set with the mouthes downeward, contrarie to the vse of other nations, which turned the brims upwards||." As the two kinds of sepulture—that in which the body was inhumed entire, and that, in which, after being burned, the ashes were enclosed in an urn—prevailed in close contiguity, it may be surmised that they may have been coetaneous; the one kind or the other being, as among the early Romans, matters of choice or convenience¶. Or

* King, in his *Munimenta Antiqua*, i. 309, mentions several urns with this zigzag kind of decoration, found in Devonshire and elsewhere; and justly remarks, that their rough rudeness and simplicity of ornament discountenance the idea of their Roman origin.

† See an account by Dr. Johnston of similar urns found at Murton, near Berwick-on-Tweed, in the *Proceedings of the Club*, vol. i. p. 53. The left-hand figure gives a general idea of the form of that which I am describing.

‡ Cæsar, *De Bell. Gall.* l. vi. c. 19.

§ Huddleston, *Edinburgh Magazine*, Dec. 1818, p. 525.

|| Holinshed's *Chronicles*, i. 64. *Descript. of England* by W. Harrison, chap. 10. Urns, similarly placed, have been noticed in Northumberland.

¶ According to Plutarch (*Vit. Num.*), Numa directed his body not to be burned, whence we may conclude that cremation of the dead was practised at that early period of Roman history. The Danes, also, have an æra in their history, dating from the time when burning of the dead was abolished, and the introduction of tumuli, in which dead bodies were placed unconsumed. The previous age was known as *Brandalter*, or age of burning. The alteration took place in the reign of Dan the Magnanimous, the sixth king of the race of Odin, A.D. 270. (Menzel's *Hist. of Germany*, i. 264.)

they might have served as a token of distinction between the warrior and the civilian—the hero who died fighting gloriously, and him who was gathered to his fathers in peace.

For a long period there existed, at a nearly equal distance between the last-mentioned cairn and the British chesters at Old Penmanshiel, a singular structure, which long defied the conjectures of the rural antiquary. It was of a horse-shoe shape, hollow in the centre, with a raised ring on all sides except the south-west, where it admitted an entrance nearly on a level with the interior space. Had it been a little larger, it might have been regarded as one of those structures, half-sepulchral, half-judicial, to which, from assemblies of the people being held around them, as being adapted to the simple tribunal ring of their senatus, the Saxons applied the term of *mote**. Being but diminutive, it had the reputation of being one of the old kilns employed for drying corn, at a period when meal, rather than unmanufactured produce, formed an object of traffic. On being broken up, however, about 1832, it was found to consist of six or seven graves, formed of huge slabs of rock, and overtopped with a mound of earth and gravel, seemingly derived from the excavated interior. All the graves were empty. It may have served the purpose of a family burying-place, or perhaps once contained the remains of some of the leaders of the people, conveyed thither for interment. On the former supposition, the vacant space at the south-west would, but for some interruption, have been at length filled up, when it would have presented the appearance of the circular barrows in other departments of the island†. From its vicinity to the old ring fortlet, it would appear to belong to the same class of antiquities, as were, in all likelihood, the monuments already described. It is an old opinion that these cairns and tumuli were the memorials of a battle, and that the dead were entombed where they fell. When such an event happened, however, it is more likely that the fallen, instead of being buried in widely scattered localities, would be, as was customary among the Danes and others, consigned to one general tomb‡. A soldier's funeral on

* Mote, a place of meeting, a convention, a court of justice.

† Similar barrows have been discovered in various parts of England. King mentions one in Devonshire, containing five skeletons (Mun. Ant. i. 309); one in Gloucestershire, opened in 1787, containing at least six bodies (Ib. 312); and one in Westmoreland, removed in 1792, in which were six bodies, placed on the ground, in kist-vaens, or stone coffins made of the slate common in that country (Ib. p. 321).

‡ In 1016, Canute, after a great battle with Edmund Ironside, cast up four hillocks to commemorate the event, two of which being opened, produced great quantities of bones, and chains like bridle-bits. Three mounds were raised after the battle of Culloden, in 1746. (Rev. J. Hodgson, in *Archæologia Æliana*, i. 7.)

the field, must have been on most occasions a hasty one; but all of these for a rude people, provided with few means of transport, and defective implements, must have been attended with a very considerable degree of labour. The huge fragments that compose the sides and tops of the graves had all to be quarried, and conveyed from a distance, at a time when there were no roads in existence; and although detached stones are everywhere numerous on the low grounds, a considerable time must have elapsed before they were piled together. Wormius informs us of two petty princes, with very expensive labour, employing themselves for successive years in erecting a single barrow*. It is deserving also of mention, that these monuments are most numerous in places where loose stones abound, and that they terminate where none are to be met with. There is in one place near the outer boundary the foundation of a cairn, apparently as ancient as the others, that has either from defect of materials been abandoned after its commencement, or the stones that composed it have been carried off to raise another's heap. This is enough to convince us that these monuments are neither the result of transitory labour nor temporary circumstances; nor, as some have conjectured, the memorials of invading nations, but the testimonials of native tribes to their own heroes and forefathers in their common places of sepulture. These we find to have been situated on the outskirts of fields, the borders of woods, the limits of pasturages, or in desolate uncultivated spots, where they would have little risk of being disturbed from generation to generation.

The fortification to which several of these monuments appear to have been attached, occupied an area of about an acre, and was defended by a single but very strong elevated ring, and was connected with a smaller circular outpost lying towards the west, and lower in position. It was situated at the head of a bank, in a field to the west of Old Penmanshiel, and was popularly known as "The Chesters," the Saxon appellation for the British Caers or hill-fortlets. It contained two compartments of unequal extent, one of which may have been designed to accommodate the human occupants, the other for the safety of their cattle. The interior was very unequal and full of stones, the vestiges probably of the rude hovels of early times. A rude hand mill-stone, composed of a sandstone originally white, but now yellow with age, dug from amid the ruins, afforded an evidence that the inhabitants had added the consumption of grain to the milk and flesh of their flocks and herds, as the means of subsistence†. The "camp"

* King's *Munimenta Antiqua*, i. 287.

† Cæsar, Strabo, and Dio Cassius, agree that the interior tribes sowed no corn, but lived on milk and flesh (*De Bell. Gall.* l. v. c. 14. Strabo, iv. p. 200. Dio Cass. l. lxxv.). In the report given by Tacitus of the speech of

was finally removed about 1831. In taking it out, two or three slab-formed graves were turned up; an approach to the modern custom of interring the dead among the dwelling-places of the living, of which I have not met with any other instance. It is possible they may have been unconnected with the fortlet, and may have been placed there after it had been abandoned. At a short distance from it to the north-east, on the summit of a swelling height, lay another circlet, but smaller and less strongly fortified. Hard by it there rose a large and conspicuous cairn, and the moor adjacent offered many lesser heaps, all of which have disappeared to make way for the plough. In some of those lately taken up, the sides of the grave consist of three or four large stones set edgewise, instead of one solid slab. It is often a source of remark, that none of these sepulchres are of sufficient length to contain the body of a full-grown man. Some, indeed, are square rather than oblong. It is hence inferred that the corpse has been doubled up. This is not, however, matter of mere conjecture, since an instance occurred several years since, on the farm of Thornton Loch in East Lothian, in which a skeleton enclosed in a cist-van was laid bare in the course of tillage, placed almost in a sitting position. Evidences of the prevalence of this practice exist in various parts of the island. May not the popular belief of the pigmy stature of the former inhabitants of the island, be founded on observations made on their mode of interment?

On the march between Aldcambus and Penmanshiel, about half a mile distant, there are still the remains of a cairn, called Andrew's Cairn. It is about 30 feet in diameter, but affords no correct idea of these monuments, being low and flat and overgrown with turf. It is composed of the large boulder stones which are sparingly scattered over the adjacent moors. Like several of these ancient heaps, it now serves as a boundary-mark; a purpose to which these structures have been put from the earliest ages*.

The largest, however, of the cairns remains to be noticed. It was called Winden Cairn, from the neighbouring small dean, remarkable only for its tortuosities. It lay in a line with St. David's, about half a mile to the east of it, and, like the last-mentioned, was regarded as a *limes* or boundary†. Like the mounds

Galgacus, we find, however, a distinct reference to the supplies of grain that the Romans had derived from those under his command (Vit. Agric. c. 31). These millstones have been found in other "Chesters" in the vicinity; and this, taken in connection with the situation of many of the smaller ones, placed amidst cultivated fields, confirms the opinion that the cultivation of the soil was not unknown to those who lived, or took refuge within them. Many farm-places, as cities elsewhere, have arisen from their ruins.

* Homer and the Charters, *passim*.

† The farm adjacent to this and St. David's is called Harelawside, a Saxon compound, signifying the *side of the boundary hill*.

of Beowulf and Themistocles, it was a solitary pile, conspicuous from afar*. Its singleness might have been occasioned by the stones within its precincts being exhausted in rearing it. It was surrounded by a coarsely-piled ring-fence, described as resembling an old fold. Its diameter was about 96 feet, and its area $804\frac{8}{9}$ square yards. The height equalled that of St. David's. It was begun to be demolished in the same year as that cairn. A few remnants of bone, described as being like pieces of chalk, were all that repaid the proprietor for his labour. Most of it was led away to fill up drains and erect stone fences. The quantity of stones contained in it must have been immense. It was popularly reported that this was one of the spots where the plague was buried, and that if the cairn was lifted, the pestilence would reappear. It was believed that the plague, like other mysterious distempers, was some gross matter that "flew in the air," from which it was possible to attract it by means of some substance, to which, from some elective affinity, it would ally itself. The most popular of these was a piece of raw meat carried up into the atmosphere by means of a paper-kite, which collected and brought down all the virus in a concentrated state to the ground, where, for the common preservation, it was carefully smothered with stones. Such places are not uncommon in various districts of Scotland. Dr. Leyden mentions that the plague is frequently represented as having combined its virulence with a pot of gold†. When the great plague raged in London, it was recommended to have large quantities of *onions* exposed in boats on the Thames, to withdraw from the air "the vast number of minute, unwholesome" animalculæ, which were supposed to be the occasion of it‡. A great sickness, we are told, prevailed in Paris in the early part of 1754; for which the physicians could not assign any adequate cause. Some accused the water, but at length it appears to have been agreed that the air was corrupted. The following experiment was devised by "these gentlemen":—"One morning at eight o'clock they fastened to a very long pole at the top of the observatory, a piece of the freshest and soundest meat; at nine it was taken down and inspected, when it was entirely vitiated in colour, taste, smell, and touch!"§

Such are the memorials of the ancient inhabitants of this part of Britain, of which, blotted from the landscape, and fading from

* "Wrought then the people of the Westerns a mound over the sea, it was high and broad to the sea-faring men, to be seen afar." (Beowulf.) The tomb of Themistocles overlooked the Piræus (Plutarch, in Vit. Themist.). Vide Wright, *Biograph. Britan. Literaria: Anglo-Saxon Period*, 11, 12.

† Scenes of Infancy, note to Book II.

‡ Bradley on Planting and Gardening; *Gentleman's Magazine*, April 1838, p. 379. § Newcastle General Magazine, June 1754, p. 329.

recollection, I have endeavoured to draw out the frail record. It is a melancholy reflection, albeit a common one, that thus, in the lapse of years, shall pass away the vestiges and the memories of those who have come behind them; and that another race, unconscious of the past, will, with like irreverence, tread upon their ashes and deface their proudest devices. Is it in reference to such futile attempts to become renowned, that the philosophic Roman historian drops a comment on the tomb of Otho?—"A sepulchre was raised to the memory of Otho, but of an ordinary structure, protected by its meanness, and therefore likely to last!"*

On some Excrescences, &c. on Plants occasioned or inhabited by Mites. By MR. JAMES HARDY.

A FEW days ago, I met with several small galls on the leaves of the hackberry (*Prunus Padus*), which I expected would furnish the larva of a gall-midge (*Cecidomyia*) or gall-fly (*Cynips*). They are green or slightly purplish, obovate, thickish, white, hirsute, and are scattered over the upper surface of the leaf, like a crop of minute mushrooms. On opening them I found them hollow, without any apparent inmate, nor anything remarkable except a few hairs, the continuation apparently of a thick crop placed at their orifice in the depression on the underside of the leaf. A few pink objects, however, at length caught my attention; and on reflection, knowing that such excrescences were sometimes ascribed to mites, I resolved to ascertain if these were not such. Next day, on shaking a few upon a slip of glass, and placing them under the microscope, I observed that they exhibited motion; and some of them were not long in pushing out their legs and crawling slowly about. They were all in the larva state, are elliptical, round-bodied, have four short legs placed close behind the head; the abdominal part is long and flexible and has about four hairs before the tip, and about as many near the shoulders. They are too minute to be seen with the naked eye; even under a triple lens they are mere linear atoms, without vestige of limbs. They are white, yellow, pale brown, or pinkish. Two species of mites were found on the outside; one a yellowish, rapid running species, common upon foliage, that appears to deposit its ova upon the hairs of the plants on which it occurs; the other was a true, flattish, pale whitish testaceous *Acarus*, and is most likely the parent of the young mites in the gall.

Knowing there were many similar galls on leaves, I next investigated those hairy purple warts so abundant near the midrib

* "Othoni sepulchrum exstructum est, modicum, et mansurum."—Tacit. Hist. ii. c. 49.

of the sloe, and found them likewise to be nests of apparently the same species of *Acarus*.

The alternate blisters along the sides of the alder leaf, and occasionally found on that of the birch, gave the same result. The species on the alder is probably different. The old mite accompanying them is a mere point, and is well distinguished by two or three squarish brown spots near the tip of the abdomen.

The leaf of the *Salix aurita* offers not less than four different galls; one large and smooth, occasioned by a black saw-fly (Linn. Fn. Suec. 2301); two caused by the larvæ of unknown species of gall-midge (*Cecidomyia*); and a fourth minute purple one, which is very abundant, and is analogous to those occurring on the sloe and bird-cherry. The last, like them, contains only young mites.

Another locality for mites I find in some round bud-like productions on the twigs of hazel. From green they become yellowish, and then wither. The larva is white; as is the accompanying mite.

A rough, pale-green, or purplish, fungus-like gall, which opens from the underside of the leaf, is abundant on the foliage of the alder in some of our deans. This is also a nursery of young *Acari*.

A conspicuous yellow gall near the summits of the stalks of *Galium verum* growing on the sea-coast is also owing to mites. The round fleshy galls of this plant are caused by the larvæ of a *Cecidomyia*.

Colonies of young mites distort the leaves of *Galium Aparine*, *Lotus corniculatus*, *Polygala vulgaris* and *Campanula rotundifolia*, by causing them to assume fantastic shapes, to become discoloured, to thicken, or their margins to roll inwards. The foliage of *Galium Aparine* is also affected in this manner from the presence of the larvæ of *Psylla velutina* of Foerster (Verhand. Natur. Vereins. Preuss. Rheinlande, 1848, p. 87); which appears not to differ from *Ps. Galii* of the same author. This *Psylla* produces similar effects on *Galium palustre* and *G. uliginosum*; and it lives likewise upon the leaves of *Comarum palustre*.

The hoary, rounded, woolly tufts, so abundant in some places at the summit of the shoots of the wild thyme, are also the production of a crowd of young mites, as was first ascertained by Loew (Dipterologische Beitr. iv. 24). Lightfoot (Flora Scot. i. 318) attributes them to a *Chermes* (*Psylla*); and Bremi thought they were owing to the larvæ of a gall-midge. The two *Bauhins* considered plants in this condition as a distinct species; the *Serpillum vulgare*, minus, *capitulis lanuginosis*, C. Bauhini, Pinax 220; *S. vulgare*, *capitulis tomentaceis, candicantibus*, J. Bauhini, Hist. Plant. iii. 269. Tournefort, however, conjectured that such appearances were owing to the irritation occasioned by

some insect pricking the buds (Hist. Plantes des environs de Paris, 149: Paris, 1698).

Another alleged production of mites is the white tufts so abundant in some places at the summit of the shoots of wild thyme. I have not had an opportunity of examining them lately; but young specimens that I brought from Northumberland in July, afforded no traces of a gall-midge to which they had been ascribed by various writers.

In conclusion, I may mention, that I shall feel obliged to any member of the Club for fresh specimens of the following galls, should they ever occur during their researches:—

Smooth galls on the leaves of the beech.

Smooth galls on the leaves or buds of the lime.

Galls on the dyer's green weed (*Genista tinctoria*).

Galls on the bryony and the box-wood.

Galls and excrescences on *Salix alba*, *S. purpurea*, and *S. fragilis*.

Large gall on the stalk of *Hieracium sabaudum* and *Cnicus arvensis*.

The ACARIDES of Berwickshire specifically described.

By GEORGE JOHNSTON, M.D.

[Continued from vol. ii. p. 373.]

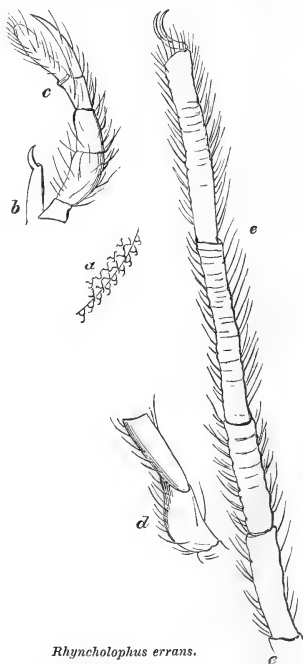
28. RHYNCHOLOPHUS ERRANS.

R. lævis ruber thorace pedibusque coccineis, dorso foveolis notato setis brevissimis (nec sine speculi auxilio conspicuis) falcatis et ad basim incrassatis velato, setis crurum acutis simplicibus. Long. $1\frac{1}{2}$ lin.

Descrip. Mite blood-red with scarlet thorax, legs and palpi, smooth to the naked eye. Body ovate, rostrate in front, broadest at the shoulders, rounded and entire behind and on the sides, clothed with very short curved spines with a bulbous base (fig. *a*), to be seen only on the margins under a high magnifier; the back flattened, uneven, marked with a foveolate furrow along each side and with a large depression just above the extremity; the venter convex, even and smooth, of the same colour as the back; the anus inferior and subterminal; the generative pore twice as large, mammillary, and nearly central. Thorax distinctly separated by a transverse line from the body and narrower than it, triangulate, uneven, with a black eye at each side on a mammillary swelling. Mandibles porrect, consisting of two parallel, elongated, tapered, smooth shafts, terminated each with a small claw (fig. *b*), and having a protrusile stylet between them. Palpi (fig. *c*) large and pediform, hirsute, porrect, the two basal joints short, subequal and narrow; the third large, bulged, and twice as long as the fourth, which tapers gradually into the fifth,

a shorter joint, on which is articulated the elongated curved and clawed terminal one, and the equally long elliptical hirsute appendage. Legs eight, filiform, lateral in their origins, the anterior remote from the posterior pairs; fourth pair longest, then the first, which are only a little longer than the third; the second pair shortest and about half the length of the posterior, that again are more than twice the length of the body; seven-jointed; first joint very short; second longer and larger, bulged and convex on the front side (fig. *d*); third longer, narrowed at its junction with the second, otherwise cylindrical; fourth longer and cylindrical; fifth like the fourth; sixth rather longer and narrower, cylindrical; seventh nearly equal to the sixth, cylindrical, with a tendency to become elliptical in the first pair only, abruptly truncate at the end, and armed with two powerful simple curved claws capable of being bent back into a wide sinus on the distal or external aspect (fig. *e*). The legs are all clothed with slightly curved spinous hairs pointed downwards and arising from a bulbous root; and from the number and disposition of these bulbs, the articulation gets a somewhat striate and nodulous appearance (fig. *e*). The hairs are all simple and smooth, and not barbed; and those of the tarsal joint are more delicate than the others.

This is a large mite, equal in length to the *Trombidium holosericeum*, but different in shape. It belongs to the genus *Rhyncholophus*, but the tarsal joints are not heavy and elliptical as in other species. Nor is it nearly so quick in motion as the *R. phalangioides*, although it moves at a tolerably quick pace, labouring, as it were, to hurry its rate. When molested, it does not stop and simulate death; and if overturned, it rights itself readily and attempts again to escape. The hairs of the body are



remarkable for their hookedness and the large sheath at their base. The eyes appear to be supported on a very short pedicle; and there is a pair on the summit of each pedicle.

The specimen from which this description is made was taken during the walk of the Club, May 1, 1850, near Twizel Castle. The mite is not a characteristic *Rhyncholophus*, but stands, as it were, between that genus and *Trombidium*. Of those species figured by Hermann, it approaches very near to *Trombidium quisquiliarum*; but I am afraid to identify it with that species, because, in the figure, the thoracic portion of the body is not represented as separated from the abdominal, but continuous with it; and the tarsal joint of all the legs is figured as being elliptical and enlarged, and much shorter than the penultimate, which is a state of parts far otherwise in our insect.

29. BRYOBIA HAUSTOR.

Rhyncholophus? haustor, Hardy in Ann. and Mag. Nat. Hist. Ser. 2. vi. 187.

R. atro-sanguineus fronti vittâ dorsali pedibusque coccineis, corpore nudo, pedibus anticis gracilibus extensis posterioribus duplo longioribus.

Desc. Mite small, of a dusky brownish-red colour with a scarlet vitta along the centre of the back, and scarlet front and legs. Body ovate, rather depressed, triangulate in front and broadest at the shoulders, rounded and entire behind, roughish but naked; the venter coloured like the back, with a large scarlet spot round the anal pore, rather convex; the posterior half beautifully marked with undulated cutaneous plaits when subjected to pressure. Thorax scarlet, separate by a raised line from the abdomen. Eyes sessile, forming a round dark spot on each shoulder, and almost marginal. Palpi short, very thick at the base, conoid and tapered, armed with a stout claw, and under the claw there is a small oblong setigerous appendage scarcely larger than the claw itself. Legs eight, gracile, filiform; the anterior longer than the body, porrect and slender; the fourth and second pairs half as long, and the third pair shortest, all a little stouter than the first; first pair with the first joint short and bulged; second equally short but smaller; third greatly elongated; fourth about half as long; fifth considerably longer than the fourth, and thickened outwards; sixth about the length of the fourth, a shade thicker than the penultimate and more setose, cylindric, oblique at the end, and armed with two pedunculated curved claws, provided with short bristles on their inferior aspect. Bristles of the legs' basal joints distant, short, thick and roughish, but those of the distal joints (particularly of the tarsal joint) are longer, simple and sharp. The joints of the other legs are pro-

portionally the same as of the first, but their tarsal joint is tapered to a point and less setose, and the setæ are also much shorter and more like those of the basilar joints.

The oral apparatus consists of a triangular process with a rather suddenly contracted apex. It is formed of two short and adnate mandibles, from between which two filiform simple stylets can be forced by compression.

The body appears to be naked, for I could discover no bristles on it, and there are only visible, with a high magnifier, a few obtusely headed, very short setose appendages on the back and margin, the nature of which is not very obvious*. I have seen in several specimens one or two oviform bodies of a red colour, and consisting of a congeries of minute globules; and I believe these to be really the ova. They are comparatively large, and occupy nearly the centre of the body. This is liable to some slight variation in colour. It is sometimes of a uniform dark red colour with duskier shades, but there is, in by far the larger number of individuals, a brighter-coloured band down the centre of the back.

I refer this Mite to the genus *Bryobia*. The legs, in proportion to each other, and in their form, are like those of this genus, or of *Linopodes*; it is here in the first pair only that the tarsal joint makes an approach to the heaviness and enlargement it has in genuine *Rhyncholophi*; and in the other legs that joint tapers to the end. As in *Bryobia*, the thorax is separate from the abdomen by a line or transverse suture; but in *Linopodes* the palpi are otherwise constructed and seem to have no pendent appendage.

The species is not figured by Hermann. It is moderately quick in its motion, which offers no peculiarity for notice. I have received numerous specimens (June 1, 1850) from Mr. Hardy. He finds it swarming under stones by wall-sides at Penmanshiel at an earlier part of the season; "and now it has issued forth, and is attacking the grasses, in the manner of the red-spider. The quicken is most affected, the leaves being quite speckled with white, and they leave behind them a number of black excrementitious spots which shine like honey-dew. They occur likewise upon *Ranunculus repens*." I found several specimens in a tuft of moss which I brought from the dean above Akeld.

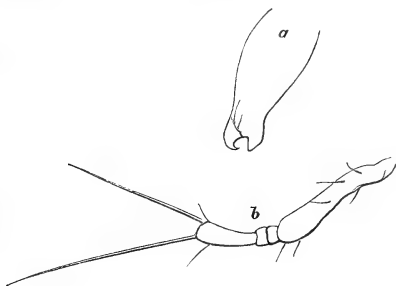
The dorsal scarlet fascia is more or less distinct, sometimes only a spot near the extremity.

* These are similar to the appendages figured by Koch on *Bryobia speciosa*, but they are scarcely so regularly placed. On a careful inspection I perceived that the back of the mite was crossed by three raised lines, one from shoulder to shoulder and two farther back, and the clubbed processes are placed on these lines. But I could not often perceive these lines at all.

30. SCIRUS LATIROSTRIS, Herm.

Scirus latirostris, Herm. Mem. Apter. 62. pl. 3. fig. 11.—*Ammonia latirostris*, Koch, Ubers. 76.—*Bdella latirostris*, Gervais in Walck. Ins. Apt. iii. 157.

Desc. Mite very small, scarlet with ochre-yellow legs. Body oblong, narrowed forwards and rostrate, rounded and entire behind, even and rather glossy, bristly with distant and rather strong setæ, and armed on each side near the shoulder with a very long pricker; venter coloured like the back with a yellow spot in the middle. Rostrum short, furnished with a few curved bristles on the sides, the pair near the truncate apex very short. Mandibles as long as the rostrum, thick and stout, armed with stout, curved, faintly tinted chelæ, one of which only is moveable



Scirus latirostris.

(fig. *a*). Palpi elongate, gracile, geniculate, the second joint greatly elongated, cylindrical, sparingly bristled, the third and fourth very short, the fifth or terminal again elongate but scarcely half the length of the second, incrassated outwards and truncate, the apex armed with two long unequal setæ, and with a short one on each side underneath (fig. *b*). Legs eight, equidistant in their insertions, and of nearly equal length and thickness, shorter than the body, tapered, bristly, six-jointed, the tarsal joint tapered, three times longer than the penultimate, more copiously setose, and furnished with two minute claws and an intermediate pulvillus.

This is very closely allied to *Scirus vulgaris*, with which it corresponds in size and in habits. My description is taken from a single specimen, and hence it may be found that the yellowish legs are rather the peculiarity of the individual than the character of the species. The principal character which separates it from the *S. vulgaris* is the short rostrum. There is a close

sameness in the structure of the palpi, but in *S. latirostris*, I think, the mandibles are stouter, the back is more convex and glossy, and the skin shows no appearance of striæ under the magnifier.

31. AMMONIA MEGACEPHALA.

A. rubida dorso irregulariter infuscato sparse setoso, rostro pedibusque clarioribus.

Ammonia megacephala? Koch. Ubers. 75. tab. 9. fig. 42; Walck. Ins. Apt. iv. 531.

Desc. Mite ovate-oblong, narrower and rostrate in front, soft, of a reddish colour with dusky blotches on the back, the rostrum and legs paler and clearer. Body divided into rostrum, thorax, and abdomen. Rostrum longer than the thorax, triangular, rather suddenly narrowing about the middle, furnished on the sides with three sharp slightly curved bristles, and the apex with a coronet of minute setæ. Eyes four, a pair on each side at the suture which divides the thorax from the abdomen, of a red glossy colour. Abdomen convex, slightly indented at the sides, sparingly covered with short bristles, rounded and entire behind. Legs as long as the body, gracile, somewhat tapered, bristly, the fourth pair longest, then the third, and the two anterior pairs a little shorter; first joint minute, second elongate, third and fourth short and equal, fifth as long as both of them, sixth elongate, tapered, armed with numerous strong short setæ on the inner or inferior side, suddenly angled near the extremity, and furnished with a pair of claws with an intermediate cushion or pulvillus. Skin very minutely striolate.

The rostrum is made up of a central piece, and of two mandibular shafts, each terminated with a pair of small neat chelæ, the larger claw only being moveable. The palpi arise from near the base of the rostrum, and are nearly twice as long as it; they are filiform, geniculate, bristly, five-jointed; the basal joint minute, the second elongate, the third and fourth small and equal, the fifth nearly as long as the second and a little slenderer, with the apex armed with two long subequal bristles; and the bristles on the sides are longer than those on the lower joints.

This mite is quick in its motions; and, when arrested in its progress, it backs with alertness. I found the specimen in my garden. The species is not represented by Hermann, but it agrees in many respects with his *Scirus longirostris*. It belongs to Koch's genus *Ammonia*, and may be his *Am. megacephala*; but the terminal joint of the palpi is represented in this to be naked, and there are a few longer bristles on the legs, which we did not notice in our mite.

32. GAMASUS LUTEUS.

G. luteus oblongus setiger lævis, dorso convexo sutura transversa dimidiato postice albo et utrinque setâ validiore armato. Long. $\frac{1}{2}$ lin.

Gamasus luteus, Koch, Ubers. 86.

Desc. Mite minute, of a uniform pale yellow-brown colour, with two short dusky vittæ on the back behind, and the anal margin white and membranous. Body oblong, shouldered in front, covered rather sparingly with strong slightly curved bristles, the back convex and even, divided into two equal halves by a pale transverse line or suture, the coriaceous portion behind semioval; the venter of the same colour as the back, even, without any distinct sternal plate, the anal pore coriaceous, round and submarginal; oral apparatus similar to that of *G. coleoptratorum*, the mandibles with pale brown chelæ minutely denticulated on the cutting edges; the palpi bristled more especially at the apices. Legs eight, more transparent than the body, bristly, tapered, first pair more slender than the others and longest, fourth nearly as long, third considerably shorter, and the second a little shorter than the third; they are all six-jointed, the basal joint thick and femoral, the second very short, the third as long as both, the fourth and fifth rather shorter and subequal, the sixth elongated, and terminated with a pedunculated vesicle and two minute claws; the tarsal joint of the first pair is almost cylindric, but it tapers decidedly in the other legs. Bristles with a little bulbous base, pointed downwards, smooth and sharp, those on the tarsal joints longest. Two rather stout bristles are placed on the front of the body; and on each side of the dorsal suture there is a strong pricker, darker coloured than the bristles, and one-half the length of the body.

I find this mite in profusion in cucumber beds. It runs very quickly, holding its fore legs forwards, and bent at the articulation between the second and third joints. These legs are rather longer than the body.

The species is nearly allied to *Gam. coleoptratorum*, from which it differs in its colour, in its greater transparency, and in its more oblong and convex form. It is also more hispid.

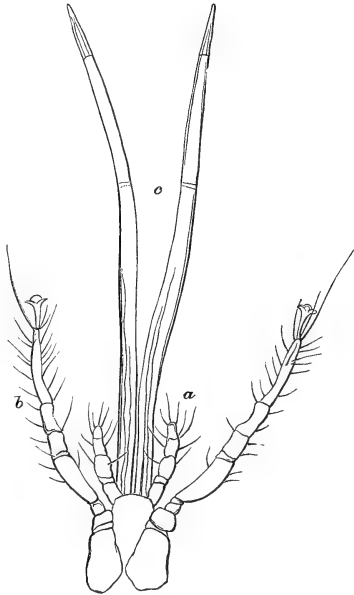
33. NOTASPIS MARGINATUS.

N. tardigradus, corpore orbiculato depressiusculo fusco-castaneo margine albo circumdato lævi inermi. Long. $\frac{1}{2}$ lin.

Notaspis marginatus, Koch, Ubers. 94.

Desc. Mite roundish, rather depressed, narrowed in front and truncate, of a chestnut-brown colour margined with a white or

colourless border, broadest behind, the margin even and entire, the back smooth and even, minutely punctured, almost naked, and the few setæ are scattered and very short; venter dark brown, convex, smooth, with an oblong sternal plate, which is minutely punctured and has a dark pore (vaginal) in its centre.



Notaspis marginatus, Koch. A view from the ventral aspect.

Palpi (fig. *a*) filiform and curved at their obtusely rounded apices, which are very bristly; and there is a short cylindrical moveable seta on the inner side of the penultimate joint. Legs eight, gracile, shorter than the body, of a uniform brown colour, tapered, sparingly furnished with very short setæ, and armed with a beautifully bilobed pedunculated vesicle and two powerful claws; they originate from the sides of the sternal plate, occupy the anterior half of the venter, and are equally distanced; the first pair (fig. *b*) are rather the longest, and of them only the tarsal joint is very bristly and has a long terminal seta which extends far beyond the vesicle. The legs are six-jointed, first joint thick and conoid, second short and thick, third elongate,

incrassated outwards, fourth and fifth not half so long as the third and subequal, sixth as long as the third.

The oral apparatus is concealed or invisible in the living insect, but becomes very obvious when the mite is compressed. It consists of two elongated four-jointed mandibles, which are protrusile and taper to a sharp point; but this point seems to be entire and unfurnished with chelæ (fig. c). Over the base there is a tricuspid plate or labrum; and on each side of this, externally, a peduncle with a long seta. The central division of the labrum is the longest or most projecting; and between each division we find a seta that reaches beyond the points. The structure is, as a whole, very characteristic of the *Gamasidæ*. The figure is a view from the ventral aspect.

The mite is nearly allied to our *Uropoda cassidea*, and is referable to the same genus, notwithstanding the differences in the oral armature. It is of the same size, and has the same Cerceyon-like habit and texture. It is, however, greatly more tardigrade, being a very sloth in its walk; and when placed on its back, it cannot recover the right position. The fore legs are kept forwards, and are kneed, from a bend at the second joint, whereon their movements are principally made.

I found my specimens in May, on the sea-shore, above high water mark.

34. CARABODES NITENS.

Mite small, roundish-ovate, narrowed forwards, convex dorsally, of a uniform glossy pitch-black colour, smooth, with gracile legs, shorter than the body. Cephalo-thorax triangulate, declined, armed on each side with a bristle that projects a little beyond the snout, the margins shouldered with a narrow projecting plate, sharp in front. Back even and smooth, marked with two or three minute foveolets, the margin entire and rounded behind; venter rather convex, even, of the same colour as the back. Legs of a clear brown or piceous colour, bristly, subequal; the first and fourth pairs longest and about equal, the second pair scarcely longer than the third, six-jointed; basal joint (fig. a) short but swollen, with a single bristle; the second joint larger and more dilated, compressed, with a convex outer edge armed with a single bristle, the inner edge straight; third joint very slender and short; the fourth elongate, thickened downwards, and armed with a long bristle near its distal end; fifth as long as the fourth, suddenly declining into the tarsal, which has a pair of long curved claws, and is more bristly than the other joints. Bristles all setaceous, those on the outer edge curved and moveable, those on the inner side immoveable and pointed downwards.

The mouth or rostrum is a complicated structure, nor am I

able to describe it correctly; for when crushed so as to be made an object for the microscope, the parts are dislocated and confused. There are two strong mandibles laid parallel to each



other, and each of them terminated with a pair of minute curved claws, one of which only is moveable. External to each mandible, and perhaps adnate to it, there is a slender jointed palpus; and underneath the mandibles a pair of triangular plates (labrum), from the point of which protrudes a sharp bristle or stylet (fig. *b*).

This mite is tardigrade. It resembles a small *Cercyon*, and is covered with a skin of the same coriaceous character as the cases of that beetle. When crushed, the skin is shown to be of the same fine ferruginous colour as the legs, deriving its darker hue only from the thickness of the viscera it encloses. The largeness of the basilar joints of the legs is surely a singular character in an insect which does not leap, and so slow and deliberate in its walk. I cannot conjecture a reason for this collection of muscular power in the limbs. In the fore legs the basilar joints are elliptical (fig. *c*); and the second joint of the second pair has a narrow wing or border (fig. *d*) on the inferior edge.

The mite is common. It lives in moss on walls, and I have found it on agarics in spring and summer.

I refer the insect to the genus *Carabodes* of Koch; but I could not discover any clavate bristle on the thorax, although attention was directed particularly to this character.

On the Frugivorous Habits of some Geodephaga.

By Mr. JAMES HARDY.

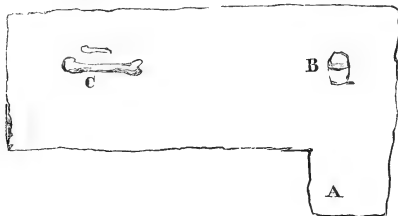
It is now I believe agreed on all hands, that *Zabrus gibbus* occasionally feeds upon grain; and some of the larvæ of *Amaræ* have been ascertained to be vegetable feeders. This, however, is the amount of information that we possess on the subject; all the other beetles of this division have been ranked as carnivorous, an inference drawn principally from the structure of their mouths and stomach. Notwithstanding this, however, it appears that several of those so-called carnivora mix with their stronger meals a certain proportion of vegetable diet. Of the *Amaræ* I have observed two feeding on plants: 1st, *Amara plebeia*, which often mounts *Poa annua* to eat the pollen; and *A. familiaris*, which tears the capsule of the mouse-ear chickweed (*Cerastium viscosum*) and devours the half-ripened seeds. *Omasus melanarius*, a well-known destroyer of earth-worms, I have detected eating the nearly ripe seeds of the hemp-nettle (*Galeopsis tetrahit*). *Curtonotus piceus* is well known to occur frequently upon the knapweed, and to thrust its head down amongst the seeds, with, it was supposed, the intention of obtaining the dipterous maggots that feed upon the seeds of the plant. I have now little doubt that its object is the seeds alone, as only yesterday I found one employed in a similar manner upon the bog-thistle, after it had devoured the skin of one of its seeds, the interior having been eaten before my arrival. I afterwards saw another pull up a seed from the head of an autumnal dandelion (*Apargia autumnalis*) and then proceed to make a meal of it. *Calathus cisteloides* will probably be found to have similar habits. One evening I found four individuals near the summits of the rag-wort; but they observed my approach, and either hid themselves amongst the foliage, or dropped to the ground.

Since these notes were put together, I have met with another instance of a Geodephagous vegetable-feeder in *Pæcilus cupreus*. At the meeting of the Entomological Society of London, May 6, 1844, Mr. Ingpen exhibited a specimen of this beetle which was taken in the act of devouring a common pea.

Notice of two ancient Tombs or Graves discovered and opened in Spring 1851, upon Adderstone Low Mill Farm, in the Parish of Bamburgh. By P. J. SELBY, Esq.

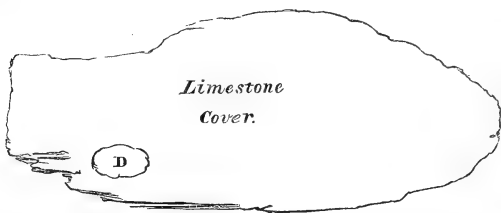
THESE graves were found when draining the field, about 3 feet from the surface; they were situated upon the crown of a rise or hillock, the highest part of the field, and pointed due north and south. The larger one formed of smooth-faced stones, each

side and end being formed of one stone; the chest or cavity, about 3 feet 6 inches long, the width 3 feet, and the depth about 2 feet, was covered with a heavy block of limestone nearly 6 inches thick. The second grave, about 6 or 8 yards to the west of the other, is smaller, but formed in the same way, and also covered with a block of limestone. In the larger chest was an



A. Recess at east end of grave. B. Urn, broken in removing the cover. C. Bones.

urn, of the usual form and manufacture found in the ancient graves and cairns of the district (several of which have been opened upon Twizell, Warenton, &c.), containing a few ashes, and some of the larger bones lay upon the floor of the tomb. No urn was found in the second or smaller grave, but small portions of the skull and other bones mixed with the earth of the floor. In the larger tomb there was a small recess at the eastern corner; but whether this had been made or left intentionally, or had arisen from the stones of the side and end not meeting at this point, is doubtful.



D. A hole through the block, but apparently natural or water-worn. These limestone blocks were probably brought from the bed of the river at Bradford, distant about half a mile, where the water runs upon the limestone rock.

PROCEEDINGS

OF THE

BERWICKSHIRE NATURALISTS' CLUB.

Address to the Members at the Anniversary Meeting held at Embleton, September 7th, 1853. By GEORGE TATE, F.G.S., President.

GENTLEMEN,

I HAVE the pleasure of congratulating you on the Club now having attained its majority. Starting into life under the fostering charge of experienced and distinguished naturalists, it had scarcely an infancy; its first efforts were manly, and even its early contributions to natural history took their place among the original authorities in scientific literature. For twenty-one years the district has been vigorously explored; and it may be regarded as a happy augury of the future, that time has not deadened your love of nature; the scenes which charmed when first visited, and furnished materials for scientific observation, and themes for picturesque and glowing description, were found, when revisited, to have lost none of their attractions. Our meetings during the past year have been gladsome, instructive, and suggestive of new trains of inquiry. Indeed, I know not where the young naturalist could have been more delighted and improved; for the experienced Members were ever ready to

assist and encourage, to explain what is obscure, and to point out whatever is beautiful or interesting.

In presiding over you, I have felt my duties to be honourable and pleasant, rather than laborious; and any difficulty I might have had in presenting you with an account of our proceedings, has been lessened by the valuable notes made at the several meetings by the Secretary and other Members.

The last Anniversary was held on September the 8th, 1852, at Newtown St. Boswells; and of this Meeting the Secretary has furnished notes:—"The Members who attended were Mr. Home, President, Dr. Johnston, the Rev. J. Baird, and Mr. Boyd. Breakfast over, the party started for a walk, to which the fineness of the day tempted them to give a pretty wide circuit. They first followed the main road leading towards Melrose for about two miles, when they diverged abruptly into a lane that led up to the Eildon Hills, and reached the summit of the most eastern. *Silene pratensis* occurred repeatedly during the first part of the walk; and at the base of the hill *Sanguisorba officinalis* occurred in three or four places. A large number of swallows were coursing over the sward of the side of the hill, exercising themselves, no doubt, to fit them for their approaching departure. Descending the hill on its south side, the *Allosorus crispus* was found abundantly. The party now retraced their steps, and proceeded to visit Old Melrose. They threaded the beautiful grounds around the old mansion, and gained the side of the Tweed, whose banks here are very worthy of the beautiful streams they overhang and adorn. The walk up the green haugh was delightful. An effort was made to reach Leader Bridge; but the distance being greater than was calculated upon, the party were fain to be ferried across the river at Gledswood, whence they began their homeward journey. About Old Melrose some hemlocks were observed fully 10 feet in height. *Clinopodium vulgare* and *Myrrhis odorata* were gathered opposite Gledswood; and on speeling the steep eastern bank of the river, the front of which is precipitous and craggy, we found it almost covered with *Gnaphalium rectum*. The walk was now directed by the shortest route, without regard to road or admonitory notices, to the huge and giant-like statue of Wallace, more fit to frighten children than to honour the patriot; whence a foot-

path conducted us hastily to Dryburgh. Crossing the Tweed again, we traversed the fine dean which leads from its bed to Newtown. Here *Astragalus glycyphyllos* and *Clinopodium vulgare* were gathered; and in a stubble-field above the dean, *Euphorbia exigua* was growing in great profusion.

“The party may be said literally to have walked in beauty; and the interest in the scenery was increased by the perfect knowledge of it possessed by our President and guide, who was ever ready to inform us of the events and traditions that render the ground classical.

“After dinner, the President, as usual, read the Annual Address. He nominated Mr. Tate for his successor; and he was elected accordingly. Mr. Tate, jun., was admitted a Member; and a notice by our young colleague of his discovery of *Asplenium germanicum* on Kyloe Crags, and for the first time in England, was afterwards read.”

The next Meeting was held at Belford, on the 13th of October, when there were present—Mr. Selby, Mr. Embleton, the Rev. J. D. Clark, the Rev. W. Rigge, Captain the Hon. F. W. Grey, with his friend Mr. Sullivan, Mr. G. R. Tate, Dr. Clarke, and Mr. Broderick. From minutes made by Dr. Clarke, I learn that the party met with a hospitable reception, and enjoyed a sumptuous breakfast at the house of Mr. Broderick. Drawings for Dr. Johnston’s work ‘On the Natural History of the Eastern Borders’ were shown, and elicited strong marks of admiration from the correctness of eye and fidelity of pencil displayed by the fair limner. Sketches of incised rocks at Ford and Bewick, sent by the President, were examined, and led to a discussion as to their age and meaning, which issued in a determination to see these singular and mysterious inscriptions on the spots where they yet remain. The following places of meeting for next year were then fixed on: viz. May Meeting at Ford; June, at Cockburnspath, for Dunglas Dean; July, at Grant’s-House, for Abbey St. Bathans; September, at Christon Bank, for Embleton; October, at Berwick.

The party afterwards walked through the wood, which partly screens and partly reveals the rudely-columnar basalt forming the hill of Belford Crags, with the chaotic debris at its base, and gradually emerged into the open country. They met, by ap-

pointment, with Mr. Broderick on the higher and more open ground, to witness the flight of his falcons. One partridge these falcons succeeded in killing; but grouse appearing shy, and the partridges seeking the safe covert of the turnip fields, a pigeon was let off, and was pursued by the two falcons; but the evolutions of the poor bird were so rapid and sure, that it escaped the fate so constantly hanging over it, and found in a corn rick a secure shelter. Two merlins were then tried at larks; but having been accustomed only to fly at blackbirds and thrushes, they soon gave up the toilsome pursuit; and the shrill lark not long afterwards carolled high and safe from his aërial tower. At dinner, the Club was joined by the Rev. H. Parker and his son.

Though no new facts in natural history were noticed at this Meeting, the day nevertheless was pleasantly spent. The neighbourhood is interesting to the archæologist, the geologist, and the botanist. Bamburgh Castle, with its historical associations, is not far distant. Budle schists are near, filled with rare and beautiful remains of fossil plants and animals belonging to the carboniferous æra; and the basaltic columns of Spindleston are but a short way off, with a remarkable assemblage of rare living plants, among which is *Allium Schœnoprasmum*, recently discovered there by Mr. William Richardson of Alnwick.

The Meeting at Ford was held on the 11th of May; and notwithstanding the beauty and interest of the locality, the number attending was small, owing probably to the unfavourable state of the morning. There were present,—Dr. Johnston, Mr. Selby, the Rev. J. D. Clark, the Rev. G. Walker, the Rev. W. Darnell, and the Rev. S. A. Fyler. The notes of the Secretary state “that the Club first visited the parish church, to examine the improvements which are being made on the venerable structure, and which promise to make it one of the most becoming for its sacred purpose of any in the district. The Members then walked to Routin Linn, a distance of about three miles, to see some singular circular markings, which are cut on the scalp of an exposed sandstone rock, and which have recently excited a good deal of interest amongst antiquaries. The rock was readily found; but it was not so easily decided by whom, and for what purpose, the engravings were made. I must leave this question to the President’s decision.”

I am tempted to offer a few additional particulars and observations. The sculpturings referred to are grooves of moderate depth, chiefly forming incomplete single circles or series of concentric circles, in some cases as many as four, around a central hollow, from which a straight groove proceeds through the series of circles and beyond them. The straight grooves in one or two instances unite; and from this combination of circles and grooves a device results not unlike the "Prince of Wales's feathers." Other sculpturings are of the shape of horse-shoes, graduated in size, and placed within each other, but having still the central hollow with the straight groove. They are scattered over the rock, and vary in size, the largest being upwards of 2 feet in diameter. A plate in Dr. Johnston's '*Natural History of the Eastern Borders*' will, however, give a better idea of their forms and arrangement than any written description. The Rev. William Greenwell described them, and presented drawings of them to the Archæological Institute at Newcastle; but the antiquarians there failed in their attempts to throw light on their origin. When "learned doctors differ," or hesitate to give an opinion, it would be presumptuous in me to adjudicate. Indeed, if these sculpturings stood alone, the fear of Edie Ochiltree might scare any one from indulging in a conjecture; but, when viewed in connexion with other facts, some inferences may reasonably be drawn. That they are of great antiquity is proved by the depth of peaty soil which covers part of them, and which amounts, even on the slope of the rock, to as much as 9 inches; beneath this soil, the incisions are sharper and more distinct than those on the exposed surface. Similar sculpturings have been discovered by Mr. Langlands on Old Bewick Hill, which is twelve miles distant from Routin Linn, on sandstone rocks standing out from the mass of which the hill is formed. The incisions are upon a more gritty stone than that at Routin Linn, and they have been more obliterated by the elements; but enough remains to show their analogous character. In both localities the sculptured rocks stand eastward of ancient camps, which have the Celtic form and construction; and from this connexion, they may, without much hesitation, be referred to the ancient British inhabitants of the county. Some significancy, moreover, seems to be involved in an eastward position; for I find that the remains of Celtic dwellings, still to be seen, on Beanly Moor and on Hartside

among the Cheviots, have their openings to the east. May there not be in this some indication—it may be faint—of the worship of the Sun—a fragment of Eastern superstition, which regarded light, and the Sun, the greatest of all lights, as the type of the good Spirit?

These sculptured rocks are near to camps, but others have been found connected with sepulchres. Captain Carpenter discovered that the cover of a Celtic cist at Ford West Field was incised similarly to the Routin Linn rock; and Dr. Wilson has figured, in his 'Archæology of Scotland,' another remarkable incised cist cover from Coilsfield in Ayrshire, the chief form on it being a series of concentric circles very like those at Routin Linn; beneath this slab was an urn filled with incinerated bones. Incised stones, having a like character, have been observed at places far distant from each other, but which had been peopled by the Celtic race; they have been found at Annan Street, and near Craigiehall in Scotland, in Ireland, and even in Brittany.

Independently of their meaning, these relics cannot be viewed without interest, as the earliest examples of sculpture in our island. I cannot regard them as the amusements of an idle soldiery, nor as plans of camps, nor as exercises of incipient engineers; for their wide distribution, and, notwithstanding differences in detail, their family resemblance, prove that they had a common origin, and indicate a symbolical meaning, representing some popular thought; and though I cannot spell the rude lettering, I fancy, since they are associated with the last remains of Celtic heroes and sages, they tell of the faith and hope of the aboriginal inhabitants of Britain.

From Routin Linn the Club proceeded to traverse the Horse Bog, which they did throughout its entire length, but without making any discovery of novelty. A pleasant and varied conversation was the sole refreshment they had on their walk, and they returned to their inn without a feeling of fatigue. The plants actually examined—for many besides were noticed and praised—were *Bryum punctatum*, *Bryum hornum*, *Adoxa moschatellina*, *Myrica Gale*, *Juniperus communis*, and *Callitriche verna*. No insects nor other animals were captured. After dinner there were read,—“A Note on the Habits and Economy of the Long-eared Bat,” by Mr. Selby; “A Notice of the Capture of *Atelecyclus heterodon* in Embleton Bay,” by Mr. Embleton; and

a paper "On a Cist found at Broomhill near Dunse," by Mr. Stevenson. It was moved and agreed to, that in future one card only of Notice of the Meetings of the Session be sent to each Member, at least eight days before the Meeting in May.

A beautiful morning ushered in the 18th day of June, when the Club met at Cockburnspath. There were present,—the President, Dr. Johnston, Mr. Home, Mr. Embleton, the Rev. J. D. Clark, the Rev. W. Rigge, Mr. Hepburn, and Mr. G. R. Tate; Mr. Stevenson joined the party in the evening. Dr. Johnston, Mr. Rigge, and Mr. Embleton, who had arrived early at the place of rendezvous, enjoyed the advantage of exploring the Dunglas Dean. "A short and pleasant walk," Mr. Rigge reports, "brought us to the most magnificent part of this celebrated dean. Nothing could be more beautiful and impressive than the scene which here opened before us. The narrow gorge, with its steep and precipitous sides, was overhung with stately trees of various hues of foliage, the face of the rocks being enlivened by the cheerful green colour and elegant forms of the ferns and other plants which sprung from every crevice; a little streamlet glided over its channel, now sparkling in the open sunshine, now obscured in the deep shade of abutting rocks or overarching trees; and the fine mansion of Sir John Hall crowned a precipice, standing on its verge, and overlooking the dean in its deepest part. Rarely indeed can a scene be met with combining so much of the wild and romantic with the beautiful. To enumerate all the plants that attracted our attention would be to name those that are familiar to the Members of the Club; but the profusion in which they were scattered, and the luxuriance both of flower and foliage were especially noticed. The pure white flowers of *Saxifraga granulata* contrasted with the bright crimson of *Lychnis diurna*, whilst the golden cups of *Ranunculus repens*, nearly as large as *Caltha palustris*, blended with the less conspicuous flowers of *Cardamine amara*, *Symphytum officinale*, and *Myosotis sylvatica*. The rocks on both sides were canopied with magnificent specimens of *Aspidium Filix-mas* and *fœmina*, *Aspidium dilatatum*, *Aspidium aculeatum*, and *Scolopendrium vulgare*. Under these we gathered *Hookeria lucens*, *Hypnum dendroides*, and *Bryum roseum* in fruit. The yellow hairy moss, *Hypnum commutatum*, was seen encrusting many a drip-

ping shelving rock. The bright unclouded sunshine of the morning was made more beautiful when reflected from the masses of dark green *Marchantia polymorpha*, which covered the bases of the sandstone rocks."

The party, joined by their colleagues at the foot of the dean, traversed the coast southwards. In passing along the shore, the following plants were observed in considerable abundance:—*Hippophaë rhamnoides*, *Poa glauca*, *Glaucium luteum*, *Blysmus rufus*, *Populus tremula*, *Ligusticum Scoticum*, *Trifolium fragiferum*, and a beautiful pink-coloured variety of *Lychnis diurna*. On the beach, *Fucus ceranoides* was found for the first time; subsequent investigation has, however, proved it to be frequent on our coast. An eager but unsuccessful search was made in the rocks near the Pees' mouth for remains of Old-red-sandstone fish.

To Mr. Hepburn we are indebted for some interesting zoological jottings. "Having," he says, "joined the party some time after they had left Dunglas Dean, and our subsequent route embracing no woodland, no opportunity occurred for noting the appearance of summer birds with the exception of swallows, chiefly the house martin (*Hirundo urbica*), which is exceedingly abundant about the rocky shores of the Cove of Dunglas. There is no extent of permanent pasture; corn waves on the brink of the cliffs, whose base is washed by the sea twice in the twenty-four hours; hence we may reasonably presume that the numbers of insects which in their larva state find food in the beds of algæ, and in their perfect form exercise their powers of flight and faculties in the immediate neighbourhood, must far exceed what is generally supposed. Two or three kestrels were observed sailing along the face of the cliffs, but there were no waders along the shore, and no water birds in the offing. The sky was too much overcast and the wind too strong for the enjoyment of insects; and none of the party being provided with a sweep net, only a few of the more common butterflies and humble bees were observed. Of Diptera, *Rhingia campestris* haunted a small patch of turnip in flower, and a species of *Sargus* flitted sluggishly about the buttercups. A fine specimen of that beautiful bee, *Bombus Scrimshiranus*, was seen in a bramble thicket near the mouth of the Pees' Burn, the very spot where, according to Dr. Johnston, it has repeatedly occurred to Prideaux

Selby, Esq. It would appear that the species is very local, and by no means plentiful. On a steep sand-bank overhanging the Heriot Burn, a large colony of sand bees (*Andrena Trimmerana*?) was found; two or three species of parasitical Hymenoptera were in close attendance; and the rapid motions of several tiger beetles, *Cicindela campestris*, coursing about in quest of prey, imparted additional animation to the busy scene."

The party separated at the mouth of the Pees, the Secretary and most of the Members taking their route through the deep ravine of the Pees, and the President and Mr. Home climbing the steep cliffs, and proceeding along the coast as far as Siccar Point. St. Helen's ruined church, standing "on the lea," solitary and exposed, and overlooking the sea, claimed from us a passing notice. It is a plain erection, without any pretensions to architectural beauty; and it wants that aspect of "hoar antiquity" which gives picturesqueness to any object; for being built of the sandstone of the district, which is of a deep red colour, it appears, as we approach, like a common brick building. A popular legend and rhyme, which have been recorded by Mr. Henderson, invest, however, this church with some interest. As an ordinary place of sepulture the churchyard is now deserted, but bodies found on the coast are still interred here.

To the geologist this coast is classic ground. Hutton and Playfair found materials here for their bold generalizations, and their descriptions have given celebrity to Siccar Point. The cliff section from this point to Dunglas Burn is highly instructive, for three different formations appear in succession,—the Lower Silurian, the Upper Devonian or Old Red Sandstone, and the Lower Carboniferous. The lofty and exposed headland of Siccar Point itself is formed of greywacke strata, rising nearly vertically from the sea, and capped by flesh-red sandstones and conglomerates, which lie unconformably on the upturned edges of the greywacke, and dip away northward at an angle of 20° . This unconformableness indicates that the greywacke had been raised into their vertical position before the sandstones were deposited; and the high inclination of these sandstones proves that there had been a subsequent upheaval, which lifted the greywacke rocks further upward, and along with them elevated the sandstone. A broad belt of greywacke rocks extends from this point across the island in a N.N.W. direction, forming the Lammermuir range, and

other hills of a like character. Fossils have not yet been discovered in Berwickshire to mark their age; but organisms have been found in Peeblesshire and Dumfriesshire, which show that they belong to the Lower Silurian formation, the most characteristic of these fossils being several species of Graptolites, which are corals allied to recent *Virgulariæ*. On the south side of the belt at Burnmouth, red sandstones also lie unconformably upon the greywacke; and it may not be uninteresting to notice that similar sandstones and conglomerates, deep red in colour and frequently ripple-marked, rest upon the flanks of the Cheviots in Roddam Dean. These red sandstones and conglomerates, which are of considerable thickness, appear in many successive beds along the coast to a little beyond the Pees' mouth, near to which the Club in 1846 discovered remains distinctly determining their age; these were scales and plates of *Holoptychius nobilissimus* and *Pterichthys major*, which are characteristic of the upper beds of the Old-red-sandstone formation. The conglomerate beds, made up of the wreck of rocks older still, and the deep ripple-marks on several of the strata tell of violent and destructive agencies, and of shallow waters frequently agitated with tumultuous heavings, and breaking with violence on the shore.

No distinct line marks the division between the Old-red-sandstone and Carboniferous formations. Disturbances appear, as at Cove Harbour, where the strata are nearly vertical, but no dislocation breaks the sequence of the series, for all the beds above the greywacke from Siccar Point to Dunglas Burn are conformable to each other. Fossiliferous beds, however, which have been noticed both by Mr. Stevenson and myself, furnish interesting evidence as to age and equivalency. Remains of fish, entirely different from those in the Old red sandstone, and of Entomostraca and of plants, occur in cherty and slightly calcareous beds not far northward of the Pees' mouth; and interstratified with these beds is a thin seam of coal. The plants are *Lepidodendrons* and *Sigillariæ*; and at the very base of the Carboniferous formation, the remarkable *Stigmaria ficoides* appears in a bed beneath the coal seam. Other rocks succeed, consisting of greenish, white, pale red, and yellowish sandstones, along with a few shales. They synchronize with the lower carboniferous beds which appear on the Whiteadder and on the Tweed. At the

Cove Harbour coal again occurs ; and below the Fishers' Houses remains of fish and of plants are remarkably abundant in a black carbonaceous shale and in a fine-grained sandstone. The fish are the same as those at Burdie House, and some scales are similar to *Holoptychius Portlockii*, obtained from the carboniferous beds in Ireland. Fine specimens of *Sphenopteris affinis* occur, showing beautifully the venations of this graceful fern, which seems to be confined to the lower portions of the carboniferous series, and which also is one of the most characteristic remains of the Burdie House limestone. Besides this plant, I also noticed *Sphenopteris bifida*, *Sphenopteris obtusiloba*, *Lepidophyllum intermedium*, and *Coniferites? verticillatus*, which was first observed in the shales below Lammerton. Beneath this shale lies a thin coal seam, and under it is a fire-clay, penetrated vertically by obscure vegetable remains, apparently the roots of the plants which had supplied the materials of the coal bed. The rocks which I have attempted to describe form a distinct division in the Carboniferous formation, lying far below the Productal and Encrinal limestones of Northumberland and East Lothian, and are well marked by the abundance of fish-remains, by the comparatively small amount of carbon, and by the slight indications of marine conditions. The coal beds are thin and unimportant, but they are the earliest that appear ; they are the dawn of the Carboniferous æra, when the earth was clothed with a vegetation marvellously luxuriant, which was entombed within the rocky strata, to furnish a source of light and heat for the intellectual and moral beings who were ages afterwards to people the earth.

The connexion between the outline of a coast and the relative hardness of rocks and their inclination to the sea, is well illustrated by a comparison between Siccar Point and Cove Harbour ; at the former the rocks are hard and dipping towards the sea, and the destructive force of the wave is lessened by the inclined surface, and hence this headland juts far into the waters ; but at the latter, soft sandstones and softer shales present the edges of their highly-tilted strata to the sea, and the roll of the billow beats with full force against them ; hence the coast is here deeply indented, the rocks are caverned and perforated, and a few of the harder and less exposed stand apart from the cliff, worked by the elements into picturesque forms resembling pinnacles and ruined towers in the midst of the waters. One mass seemed to me like

a colossal creature from the ruins of Nineveh, lying at rest, with the head partly defaced, yet looking tranquilly over the wide and troubled ocean before it.

The different parties reunited at Cockburnspath in time for dinner, to which, after their long and interesting rambles, they did ample justice. After dinner, several mountain limestone fossils, recently obtained from Alnwick Moor, were shown by the President, among which were *Avicula Verneulii* and *Pteronites angustatus*; and also stems of *Ulodendron ornatissimum*, with finely sculptured fruit-scars, measuring 15 inches in circumference. A rare specimen of this singular fossil tree, obtained from the same locality, shows that the mode of branching was dichotomous, that the leaf-scars were rhomboidal like those of *Lepidodendron*, and that the fruit-scars were in vertical rows on opposite sides of the stem and branches, so that the branches and fruit-scars were on the same plane.

The loveliness of the morning, the beauty of the scenery at Abbey St. Bathans, and the associations around Grant's-House as the birth-place of the Club, ought to have tempted a larger number of Members to assemble on the 20th of July than actually met. There were present,—the President, Dr. Johnston, Mr. Selby, Mr. Jerdan, and Mr. Elliot; the Club was favoured with the company of Mr. Hardy of Penmanshiel, Mr. Stevenson of Dunse, and Mr. Thomas Tate of Kneller Hall College. The party proceeded at once across the high ground towards Abbey St. Bathans. The day was bright, the breeze refreshing, and the conversation agreeable; otherwise these moorlands would have appeared dreary; naked hills succeeding each other, with few plants of interest, and with scarcely any trees or human habitations to break the monotony of the scene. Greywacke rocks were beneath, which on decomposing form a clayey soil retentive of moisture, but the vertical position of the beds helps the natural drainage. Before descending to the valley of Monnie-nut, *Erica cinerea* was observed in great beauty and luxuriance; but its relative the common heath, *Calluna vulgaris*, had not yet begun to flower. *Luzula congesta* was also noticed. Passing by Butterdean and Quixwood, the party reached the valley of the Whitcadder, where the sequestered and peaceful Abbey St. Bathans reposes enclosed by hills, amidst verdant woods and

bright streams, and appearing the more lovely after the eye had been wearied with the dull monotony of the moorlands:—

“.....full many a spot
Of hidden beauty have I chanced to espy
Among the mountains; never one like this;
So lonesome and so perfectly secure;
Not melancholy—no, for it is green,
And bright, and fertile.”

Here the party separated, the Secretary and most of the Members following the course of the Whiteadder on the north side. According to Mr. Selby's notes,—“A specimen of *Polyommatus Artaxerxes* and several of *Polyommatus Argus* were taken on the banks of the Whiteadder. The dearth of summer birds was noticed, a remark which attaches, so far as my observation extends, to other parts within the limits of the Club. A leash of wild ducks, *Anas Boschas*, in a secluded nook of the river, were the only birds which attracted notice.” Mr. Jerdan has furnished the following botanical notes:—“The sides of the valley of the Whiteadder are in many places clothed with natural wood, consisting chiefly of oak, *Quercus sessiliflora*, and hazel, and in wet spots of alder, intermixed however frequently with mountain ash and aspen; the last tree was particularly noticed nearly opposite to Abbey St. Bathans. Before reaching the river, a pretty road-side spring was observed canopied and lined with mosses, principally *Hypnum comnutatum*? In its vicinity grew *Carex pulicaris* and *Aspidium Filix-fœmina*, the latter in profusion. Proceeding thence by the banks of the river, there were noticed a *Salix* (pronounced to be *Salix cinerea* by Mr. Selby), a patch of *Mentha viridis*, apparently wild, and a bramble resembling *Rubus cordatus*. On the rocky parts of the river side, *Solidago virgaurea* grew in great beauty; and in the woods, *Hieracium tridentatum* and *Melampyrum pratense*, var. β . (with entire lanceolate leaves), were found. In a plantation near the Retreat, *Carex binervis* and *Agaricus tener* were observed. The party returned by the road from the Retreat Gate to Grant's-House, passing by a beautiful thicket of honeysuckles, on the banks of the Eye, near the railway station.”

The President and Mr. Hardy crossed to the opposite side of the river, and attempted to reach the summit of Cockburnslaw. Want of time prevented them accomplishing this; but the space

traversed gave an idea of its rocky structure. Here syenite, which, according to Mr. Stevenson, sometimes passes into a true granite, has lifted up, and on the sides of the hill pierced through, the greywacke rocks. These rocks are well seen in the banks of the river, to which they give a picturesque effect. Near to the Giant's Leap several intruded trap rocks appear, showing that the district had been subject to frequent disturbance from volcanic upheavals and outbursts. In our route Edin's Hall was visited, one of the most curious remains of other times, standing on a lower platform of Cockburnslaw, and overlooking the river. Of this remarkable structure an able and elaborate description has been given in a former Number of our Transactions by Mr. Turnbull. We observed in one of the cells in the wall the remains of what was originally a rude approximation to an arch, such as is seen in a more complete state in the Aberdeenshire "Weems," and in the "Picts' Houses" of Orkney. In these, large stones overlap each other in succession, so that the walls converge towards the top, and the whole was completed by a single block covering the remaining space. Mr. Hardy has been informed, that near the summit of the hill there was formerly a hollow surrounded by stones, and called the "Pech's grave;" these however have disappeared. The steep banks of the river were covered with *Vaccinium myrtillus*, and the berries, which were ripe and vastly abundant, furnished an agreeable refreshment. Wild fruits generally have this year been plentiful. Noops, the fruit of *Rubus Chamæmorus*, have never been more abundant on the Cheviot. Opposite to the Retreat we noticed *Polypodium phegopteris*, *Listera cordata*, and *Lycopodium clavatum*.

After dinner, a paper was read from Dr. Baird, entitled "Some Remarks upon Entozoa or Intestinal Worms, with a list of the species at present known as occurring within the limits of the Club." The evils which they inflict on mammalia and other animals, and which are pointed out in this able paper, especially the ravages they commit among sheep and cattle, render the subject practically not unimportant. An observation of Dr. Wolfring on the distribution of one group of them, the Helminthes, shows that these humble creatures even have a connexion with one of the great practical questions of the day, the sanitary condition of a district; for he found, that in the district

of Thalmessingen, where the water was hard and contained many earthy ingredients, the soil very damp, and the food of the inhabitants mostly meal, salted and smoked beef, and much pork, the disease of worms was very common, *Tania solium* and *Ascaris lumbricoides* being particularly abundant; but a league beyond this district, where these conditions were absent, the disease is very rare*. Communications were read from Dr. Wilson, in which evidence was given, that full-grown herring had been found in the stomach of Norway salmon. The President read a short notice of Celtic sepulchral remains in the neighbourhood of Wooler.

Mr. Stevenson favoured the Meeting with an account of some interesting meteorological observations he had made in Berwickshire. The connexion between the periodic maxima and minima of the solar spots has been known for some time; but Mr. Stevenson has succeeded in proving that the auroral displays also have their maxima and minima corresponding with those of the solar spots—a conclusion he was led to expect from the well-established connexion between magnetic disturbances and the appearance of the aurora. This result, and the records proving it, were communicated to Professor Faraday, who induced the author to publish them in the Philosophical Magazine.

Mr. Jerdan exhibited some specimens of white clover, *Trifolium repens*, with greatly elongated peduncles and luxuriant calycine leaves, found at Reston Station; and it may here be noticed, that Mr. Selby took, at Twizell, in the early part of August, a beautiful specimen of *Hipparchus papilionarius*, a moth rare in the district.

In the Transactions of our Club are several sketches of scenery, some notices of legends, pastimes, customs, and ruins, belonging to the olden time, and many notes and descriptions of plants and animals. At a fitting time, Dr. Johnston, the Founder and Father of the Club, has, in one department, combined these scattered materials, and, along with his more extended and varied observations, presented them to the world in a volume of great value and interest,—‘The Natural History of the Eastern Borders.’ This publication may be regarded as an important part of our own Proceedings, for the author professedly records the discoveries of the Club, describes the Meetings, and the scenes

* Siebold on Helminthology, in the Ray Society’s Reports, 1845.

which it has visited, and gives expression to the genial spirit by which it has been actuated. In this volume the district is graphically described; all the plants are registered, from the humblest *Conferva*, that appears as green slime on the waters, to the noblest tree adorning the forest; but the peculiarity of the work, by which indeed it stands pre-eminent over every other flora, is that truths are here seen in their connexions, and made mutually to illustrate each other; for whatever of interest is associated with plants—whether beautiful scenery or descriptive poetry—whether legends or historical events—the folk-lore of a district or the memories of the wise and good—is brought to make these plants delightful instructors of the mind and heart. The work belongs to a class which is unfortunately too small, wherein the resources of a powerful imagination and a cultivated taste lend a charm to exact science. Pervaded throughout by an ardent love of nature, and containing many lovely pictures of natural scenery and of pastoral life, and written in a style beautiful and eloquent, it will inspire others with a love of nature, and send them forth from confined towns and dissipating pursuits to the brae side, the wooded glen, the hill top, and the sea-shore, to observe her varied productions, and “hold communion with her visible forms.” And this will be productive of an important moral and social benefit; for, as the author well says,—“The studies that woo the spirit away from grossness, that keep the mind in life and action, and, furnished with varied and ever-germinating matter of thought and illustration, are useful to all; and, as ours contemplate only the beautiful and the perfect, yet are full of emblematic teachings and moralities, they must ameliorate the man,—at once adorning and relieving the toils and vexations of a busy life, and refining and exalting the enjoyments of a social one.”

This is not an unfitting time for the Club to look inquiringly into the future. I demur to the notion, that because so much has been reaped during the past, nought save scanty gleanings remain for future cultivators. Some departments yet present broad and rich fields of labour. Many of our ancient dwellings, sepulchres, hill fortlets, and camps, which are scattered pretty numerously over the wilder and secluded parts of the district, yet remain unnoticed and undescribed; the more interesting of our venerable churches, with their quaint memo-

rials, might receive more than a passing notice ; the geology of the district still requires to be treated with the aid of organic remains ; and in palæontology, so essential to complete the natural history of the district, the ground is to a great extent unbroken. One attempt has this year been made to supply a want ; a fossil flora appears for the first time in ‘*The Natural History of the Eastern Borders.*’ Drawn up from rather scanty materials, the list is necessarily imperfect ; and from what I have this season noticed in Berwickshire, I feel sure that it will yield other interesting and new floral forms. As more abundant materials have been collected for the fossil fauna, it may be hoped that the forms in this division will ere long be more successfully chronicled and described.

But even if the whole field had been explored, there would still remain verge enough for every earnest-minded observer. Each generation has its own points of sight from which it views objects, and its own method of grouping them ; and hence continued observation leads to new truths, even in a frequently trodden path. Nature is inexhaustible, and we can never reach to the uttermost “height of her great argument ;” but the labours of the past place us on a vantage-ground, since the more we know of the works and wonders of nature, the better able will we be to pierce her deeper mysteries. “The light,” says the immortal Milton, “which we have gained, was given us, not to be ever staring on, but by it to discover onward things more remote from our knowledge.”

Some Remarks upon Entozoa or Intestinal Worms, with a List of the Species at present known as occurring within the Bounds of the Club. By WILLIAM BAIRD, M.D. &c.

THE natural history of the Entozoa, or Intestinal Worms, is a subject which has never yet, I believe, engaged the attention of the Berwickshire Naturalists' Club. With very few is it a popular study; to many indeed it is a repulsive one; yet, when fairly entered upon, how interesting it becomes! Seldom have naturalists in this country paid any attention to these remarkable creatures; and if, in the remarks which I now propose to make, I shall induce any of the Members of the Club—a Club composed essentially for the most part of practical out-of-door naturalists—to devote some part of their time to the elucidation of their history, I consider that I may have done science a service.

I. With regard to their Origin.

Intestinal worms are found in all animals, from man, the monarch of creation, to the caterpillar which crawls under his feet; from the lion, which roams the forest in awful majesty, to the fly which buzzes about his ears. In the human subject they are found in all ranks, in the palace and the cottage, in both sexes alike, in all ages, and not unfrequently even in the new-born infant. They infest almost every organ of the body of the animals in which they occur. They are found in the brain, the eye, and the different cavities in the head; in the windpipe, in the lungs and blood-vessels of the chest; in the liver and other organs of the abdomen; in the kidneys, urinary bladder, and under the skin; the only organ, I believe, in which they have not been found being that puzzling organ, the spleen*. We can readily understand how they may be found in the stomach and intestinal canal; but it is very difficult to comprehend how they occur in the brain, the humours of the eye, or in the blood-vessels. If the Harveian dictum, “*Omne vivum ex ovo*,” be correct, how came their eggs to obtain entrance to such places as these? The difficulty of accounting for such facts has led to various conjectures amongst philosophers, and has given origin to several theories of generation. The ancients believed in spontaneous, or, as it is sometimes called, equivocal generation. They imagined that new living bodies sprang from the putrefaction of old bodies; that while organic substances by the action of the chemical forces were undergoing decomposition,

* One instance only has been recorded, and that the spleen of a species of toad.

the like forces effected the reunion of their elements, and brought about the formation of the simplest kinds of animal organism, and these by aggregation constituted the more complex structures. The modern advocates of spontaneous generation, such as Rudolphi, Bremser, &c., very properly treat this notion as absurd; but they contend, nevertheless, that the intestinal worms must either enter the bodies of the animals in which they live from without, or that they must spring spontaneously into existence. As Entozoa are found in the unborn fœtus of many animals, they cannot, they say, in these cases be produced from without. As they only live in living bodies, dwelling according to the different species in the deepest and most impenetrable parts of the body, they cannot be introduced into those parts from without. When an insect of any kind introduces itself into any part of a body, it is always attended with pain. Entozoa, on the contrary, frequently live in the bodies of animals for a length of time, without letting their existence be known. Many animals have worms peculiar to themselves. If the worms, or their ova, come from without, each animal might possess any one or all of the species. Intestinal worms have a peculiar structure, which we do not see in any other class of animals; they only live upon an aliment already elaborated or assimilated in living bodies. Solitary hydatids exist, these advocates continue, in the brain for instance, which have no sexual organs; how then can we suppose them to have the faculty of propagating themselves, or transporting themselves from one body to another? They conclude by asking,—Is it impossible that mucous particles existing in the humours of the animal body might approach each other, unite, and arrange themselves in the form of worms by the vital powers of the organs, in places favourable for their production, and finish by becoming animated living beings? Analogy, however, is strongly opposed to this doctrine. From the highest orders of the Mammalia down to the minutest insects which our microscopes enable us to investigate, all nature protests against it; and our knowledge with regard to the origin of those animals we have been able to examine affords a strong presumptive proof, that if we could, by more perfect means of examination, follow up their history, we should find that these creatures, obscure though they be, are produced and multiplied like all other animated beings.

Needham, in the early part of the last century, advocated another theory. In studying the natural history of the Infusory Animalcula, seeing these creatures produced in myriads in situations where he did not suppose ova could exist, he conjectured that their appearance could only be accounted for by vegetation, or by what he called a “vegetative force.” This he conceived to exist

“in every microscopical point of matter, and every visible filament of which the whole animal or vegetable texture consists.” “I suppose,” he says, “all semen, of any kind, to be an exalted portion of animal or vegetable matter, secreted from the aliment of every generating subject when it is adult, and no further demand is made for its increase and growth; this I suppose to be endowed with a proportionable vegetative force; to be various in various circumstances, and heterogeneous in different subjects; but to be uniform in its productions when it falls into a matrix, where it finds matter to assimilate of a quality or quantity sufficient to form that specific being*.” This vegetative force he applied to account for the origin of Entozoa also.

At the time Needham was advocating his peculiar views upon this subject, Buffon was expounding a different theory. Animals and plants he conceived to be formed by a particular combination of organic molecules. “These he supposed, by coalition, to constitute the *prima stamina* of all animal and vegetable bodies, simple, uniform, common to all, and consequently to be found in a certain quantity in every portion of food, aliment, or nutritive juice; and from thence to be digested, and when the subject became adult, secreted and strained, for the formation of the seed of every plant or animal; and in this fluid or substance to be consequently found in much abundance. He further supposed these original parts to be moving when disengaged, living in appearance, and gifted with certain organs, but extremely simple in their composition†.”

These theories have long been exploded. But though the labours of Harvey, Spallanzani, and many other naturalists who have succeeded them, prove incontestably that all animals, as far as our observations can as yet carry us, have their origin from ova or pre-existing germs, it must be confessed, that the introduction of ova into such situations as those in which we discover many Entozoa is exceedingly difficult to be accounted for. It would appear, from some of the experiments of Spallanzani upon Infusory Animalcules, that it is most probable that the ova or germs of some of these curious little creatures can sustain a great degree of heat, even boiling, for a certain space of time. If this be correct in regard to Infusoria, it may be equally true with Entozoa; and thus it is possible their eggs may be conveyed alive into our stomachs with our food. Steenstrup has some curious observations upon the method in which intestinal worms can insinuate themselves from without into the internal organs of the animals in which they are parasitic. In his experiments

* Needham, *Observations upon the Generation, &c. of Animal and Vegetable Substances*, p. 49.

† Needham, *l. c.* p. 20.

to prove his theory of the alternation of generations, he shows that several of the species of *Distoma*, or fluke, which we find in the liver of some of our freshwater mollusks, are, previous to their taking possession of their habitat, in the body of the snail, free and unattached, enjoying the power of locomotion in the water in which the mollusks themselves are found. In this stage of growth they have been described as a distinct genus, under the name of *Cercaria*. These *Cercariæ* he has often seen attach themselves to the body of the snail, get rid of the tail which in their free state they possessed, and after a short time make for themselves a circular cavity in the mucous integument of their host. The mucus gradually hardens, and forms a tough, nearly transparent case around them, in which they lie concealed for months in the state of a pupa. Emerging from this pupa state, they penetrate deeper into the skin, and following the course of the aqueous canals of the snail, they at length enter the organs in which as true Distomata they are found. In the same manner this ingenious naturalist accounts for several of the Entozoa occurring in the eyes of fishes. At first swimming free and unattached in the water, they after a time fasten themselves to the cornea, or in the immediate neighbourhood of the eye, of the fishes they are destined to inhabit. Afterwards assuming the pupa state, they make for themselves a nidus under the skin, or under the cornea, where they remain for a certain period of time, till, emerging from their pupa state, they are able to penetrate into the substance of the eye itself. We thus see that the origin of the Entozoa is a subject abounding in extraordinary interest; and I hope some of the Members of the Club, who may have opportunities of observation, may be induced to devote some of their time and attention to it.

II. *The Evils they inflict upon Mammalia and other Animals.*

I will not enter at present upon the subject of the mischiefs which man suffers from the presence of the *Tænia*, or tape-worm, the *Ascarides*, &c., in the intestinal canal; the encysted Entozoa, such as the *Echinococcus*, in the liver, &c., these being subjects for the investigation more particularly of the physician; but shall confine my remarks to a few instances of the extensive ravages they sometimes commit upon the lower animals.

The celebrated Camper gives a remarkable instance of the fatal effects produced in young cattle by the introduction of a species of *Strongylus* into the trachea and lungs. An epizootic, which destroyed many thousands of cattle, appeared in Holland in 1768, and threatened the destruction of the whole stock of horned cattle in the country. Camper's services were called into requisition by his countrymen, and inoculation, which had been

tried with variable success in England and other countries, was used by him extensively. Still the disease progressed, inoculation itself killing nearly half the cattle in which it was practised, till at last, through the practical sagacity of a Dutch farmer of the name of Rinders, he discovered that calves born of a mother which had passed successfully through the disease might be inoculated with perfect safety. After conquering to a great degree the prejudices of his countrymen upon this subject, and seeing his experiments succeed to a pleasing extent, all at once an unfortunate and unforeseen accident occurred to throw the greatest discouragement upon his labours. Amongst the young cattle which had been successfully inoculated and which were recovering from the disease, a new malady sprung up, which carried off thousands. The symptoms of this fatal distemper were, a severe cough and violent sneezing. The animals ceased to chew the cud, and they wasted away till death terminated their sufferings. Scarcely one attacked survived. The farmers attributed the disease to the effects of the inoculation; and this process was obliged to be temporarily suspended. Camper at last succeeded in discovering the cause of this fearful malady. He opened a calf which had died of the complaint. No disease could be discovered in the organs of the chest or abdomen; all appeared healthy. At last he removed the tongue and windpipe; and scarcely had he opened the glottis, when he perceived several thousands of worms, which filled the trachea down to its termination in the substance of the lungs. Opening a second, he discovered a cluster of several thousands, which obstructed the trachea, and had produced suffocation. This disease is well known in England by the name of "hoose" or "husk," and at times is very fatal. The first notice I have seen of it is in the 'Philosophical Transactions' for 1755, by Dr. Frank Nicholls. It attacks bullocks, he says, when young, very rarely appearing in those of more than a year old. The symptoms he describes are very nearly the same as those mentioned above; and the windpipe and its branches, in those cattle that were opened after death, were found loaded with small taper worms of about 2 inches long. He was assured by the farmers, that no method of cure for the distemper was known. More recently, Mr. Youatt, in the 'Veterinarian' for 1833, vol. vi. p. 177, bears like testimony to the fatality of the disease, which, by his account also, is confined to young cattle. The cough, he says, is unusually distressing; the intermissions are short, and the paroxysms are violent in degree. The beast gets off his food; he becomes hide-bound; his belly appears tucked up, his coat staring, and his flanks heaving. "It is heart-breaking," he adds, "to hear him cough." "The farmer knows too well the uniform fatality

of the disease." When the trachea is opened, the bronchial passages are found choked up with worms, and in general the mucous membrane of the trachea and bronchi presents traces of vivid inflammation. Few or none attacked ever recover; and the only way to prevent the fatality amongst cattle which show the disease is to remove them from the pastures in which they are feeding at the time, and supply them with dry hay. The Entozoon which produces all this mischief is the *Strongylus micrurus*, the *Strongylus vitulorum* of Rudolphi.

Another species of worm, belonging to the same order as the last, the Nematodea, infests the trachea of our domestic poultry, producing the disease called the "gapes." For the first account of this worm we are indebted to Dr. Wiesenthal of Baltimore, and afterwards to Colonel Montagu, who has published a good account of it in the 'Wernerian Transactions,' vol. i. p. 194. Young poultry are the chief subjects of this affection, which shows itself by the little creatures opening their mouths, and extending their necks as if gasping for breath, sneezing, and frequently attempting to swallow. They languish, grow dispirited, droop, and die. Very few recover if not attended to. Montagu, upon opening the windpipes of several of those that died, found the trachea highly inflamed, and no less than twenty worms firmly adhering to its surface, so completely choking up the passage that the chick had evidently died of suffocation. Young turkeys, pheasants, and even partridges, suffer from the same malady*.

An exceedingly fatal disease is produced in sheep by an Entozoon, called the *Cœnurus cerebralis*, which has its abode encysted in the brain. It is very prevalent and fatal in some seasons, in cold and backward springs, and when the sheep are feeding in wet and moorish districts. It is particularly frequent and fatal in many parts of France, and it is calculated, Mr. Youatt says, that at least 900,000 sheep annually die in that country of this disease. In this country it is known by the name of the "sturdy," and in England it is sometimes called the "gig," the "giggles," and the "turnsick." In France it is known by the name of "tournis." The malady appears during the first year of the animal's life, generally when it is about or under six months old. The symptoms and progress of this disease are so well described by Mr. Youatt in the 'Veterinarian' for 1834, vol. vii. pp. 519-531, that I will transcribe the whole passage:—"The sheep cease to gambol with their companions; they are dull; they

* Montagu mentions that he cured this disease amongst his own poultry by mixing their food (barley or oatmeal) with urine instead of water, and feeding the chicks with it three or four times a day. Under this treatment, he says, out of a large brood, not one suffering from the disease died. All recovered. The worm is the *Syngamus trachealis*.

scarcely graze; they ruminate in the most languid and listless manner; they separate themselves from the rest of the flock; they walk in a peculiar, staggering, vacillatory manner; they lose themselves; or, seeking out some ditch or brook, they stand poring over the ruffled or flowing water. They stand there until they appear to be overcome with vertigo, and often tumble in. In the midst of their grazing, they suddenly stop, look around frightened, and start away and gallop over the field. They begin to lose flesh, and the countenance is haggard and the eye is wandering and of a curious bluish colour.* As the disease proceeds, "the animals begin to carry their head on one side, and always on the same side*. It is with difficulty that they can straighten the neck in order to graze, and then there is a peculiar undecided motion in the act of grazing. Their fits of wandering become more frequent; they are oftener frightened without any apparent cause; they take increasing pleasure in poring over the rippling brook; there is something in the playing of the light on the water, or in the murmuring sound, which has a lulling influence over them, and they often forget themselves, and topple in and are drowned. By and by they commence, and even while grazing, a rotatory motion, and always in one way, and with the head turned on the same side. Then they almost cease to eat or ruminate, partly because the disease, from its debilitating character, destroys the appetite altogether, and more perhaps because they are rapidly becoming blind. They begin to be inattentive to surrounding objects, and move among them as if they were unconscious of their existence. The habit of turning round increases; they will continue to form their concentric circles for hours together without stopping or until they fall, and they will rise again only to commence the same round; at length they die emaciated or exhausted; or death is somewhat hastened by their being unable to extricate themselves from the brook or the ditch." Various attempts have been made to cure this disease, but none appear to be decidedly successful; and Mr. Youatt, after enumerating them all, concludes thus:—"In the present state of our knowledge and practice, I am afraid, that regarding the interest of your employers, you should advise them, when the turnsick begins to appear among the

* "If the head should sometimes be held on one side and sometimes on the other, it indicates that there is a hydatid in each lobe of the brain. In a very few cases the sheep will march straight forward, with his head depressed, running against everything in his way, and continually falling. The hydatid will then be found to be attached to the corpus callosum, and to occupy the middle scissure of the brain. In a few cases the muzzle will be elevated and the head thrown back, and still the sheep will pursue his straightforward course; the hydatid will then be found on the cerebellum, or occupying the fourth ventricle."—*Youatt, l. c.*

lambs, to fatten them as quickly as they can, and to slaughter those that may become affected the moment the disease is ascertained. This is a most lame and impotent conclusion. I am sorry for it; but truth must be our guide." These remarks upon diseases of cattle and sheep I hope will not be considered out of place here, for it has been calculated that the worth of our cattle and sheep in this country is little, if anything, below 120 millions sterling!

Horses are not liable to such fatal affections from Entozoa as sheep and cattle; nevertheless they suffer to a considerable extent from them occasionally. The *Ascarides* in their intestines are very troublesome. A horse pestered with many of these worms, though he will go through his business tolerably well, and sometimes feed heartily, yet always looks lean and jaded; his hair stares as if he were sickly, and nothing that he eats makes him thrive. He shows symptoms of pain in his bowels by often striking his hind feet against his belly. These kinds of worms are seldom dangerous; but horses are sometimes attacked (and this has chiefly been observed in India) by a small thread-like worm, which gets into the aqueous humour of the eye, and if not attended to and extracted in time, invariably produces blindness. This worm is the *Filaria oculi*.

The last disease I shall mention is one which attacks pigs, and causes much loss to those who keep many of these animals. It is produced by an Entozoon called the *Cysticercus cellulosæ*, and in this country is known by the name of "measles." In France, where it is equally common, it is called "la ladrerie." It is a disgusting disease, and manifests itself at various periods of the animal's life, more particularly when it is adult. It makes its appearance in the form of white granulations or vesicles of an ovoid shape, which are disseminated through the different parts of the fatty tissue, on the surface, in the interstices of the muscles, under the coats of the viscera, at the lateral and inferior portions of the tongue, &c. It is in the muscles that the disease, for the most part, makes its first appearance, and it is accompanied by general weakness. If you take hold of the pig by one of its legs, the animal makes no attempt to withdraw it; it utters a dull cry; the bristles are easily torn from the skin, and sometimes the bulb is full of blood. As the disease progresses, the cellular tissue ulcerates; as the vesicles increase in number, the pig becomes sullen, careless of everything around it, indifferent even to blows; it walks slowly and carelessly; the eyes are dull and heavy; the inner surface of the mouth becomes of a pale colour, often spotted with violet-coloured spots; the respiration is slow; great weakness supervenes; it cannot keep

up upon its hind legs; the hinder quarters appear paralysed; the body exhales a bad odour; tumours show themselves in the belly; the extremities swell, and death at last ensues. The flesh of pigs labouring under this disease becomes soft and insipid; the fat is white, and loses its consistence; it takes salt with difficulty, and soon spoils; and it has been said that human beings, after eating measled pork, are affected by sickness and diarrhœa. As this kind of pork is prohibited being sold, of course the value of a pig-keeper's stock becomes seriously injured. In France, during the reign of Louis XIV., inspectors were appointed to examine the tongues of all the pigs brought to market, in order to detect any labouring under the disease, and prohibit it being sold. The disease appears to be invariably fatal; and the only thing to be done is to kill the animal as soon as the slightest symptoms make their appearance, and before the flesh of the creature becomes tainted.

Such are a few of the diseases and injuries produced in the lower animals by the presence of *Entozoa*. Many of them, such as those I have mentioned above, prove almost invariably fatal; and it therefore becomes an object of great interest and vast importance to the farmer and grazier to find out the means of remedying these evils. It is with this object that I now endeavour to call the attention of the Members of the Berwickshire Naturalists' Club to the history of these curious creatures.

The researches of Steenstrup, which I have mentioned above, prove that in the cases of two or three species, they can and do enter the bodies of the animals in which they are parasitic from without. Since these observations were made public, M. Siebold of Berlin has published some extraordinary circumstances in the history of these obscure animals, which, if borne out by subsequent observations, will open a new field for investigation. The *Cysticercus fasciolaris*, for instance, an encysted Entozoon, which inhabits the liver of the common mouse, he has found to be the young of a *Tænia* which had become vesicular, and did not as yet possess sexual organs. This encysted worm, when conveyed into the stomach of the cat, becomes in a short time fully developed, and takes on the form of the *Tænia crassicolis*, the tape-worm of the domestic cat. The *Cysticercus pisiformis*, another species of the same genus of encysted intestinal worms, which is found in the peritoneum of the hare and rabbit, becomes, when conveyed into the stomach of the dog, the *Tænia serrata*, or tape-worm of the dog. The changes which take place in this latter species have been followed up by Siebold; the *Cysticercus*, while alive, having been conveyed by him into the stomachs of young pups in milk, the animals killed at different periods of

time after having swallowed them, and the progress of the Entozoon traced to maturity. The *Cœnurus cerebralis*, too, which I have particularly mentioned as being the cause of the "sturdy" in the sheep, has been asserted by this acute observer to be likewise the young of a species of *Tænia*, or tape-worm; though his observations upon that head have not been sufficiently matured to determine the species into which it is transformed. Should these observations be proved to be correct, it is impossible to say of what immense value this knowledge may become; and M. Siebold believes that he will soon be able to point out to farmers the means of preventing the development of these parasites, the presence of which in sheep, &c., is known to exercise such a fatal influence*.

Annexed is a list of the Entozoa as yet known to me to have been noticed occurring within the limits of the Club. In giving the name of the species, I have referred to the lately published Catalogue of the Entozoa in the collection of the British Museum, for its synonyms, and have in addition given a reference to where it is described by Rudolphi or Dujardin. With one exception, all the species here mentioned have been communicated by our Secretary, Dr. Johnston:—

* M. Siebold believes that the ova of the *Tæniæ* of certain carnivorous animals are occasionally introduced into the bodies of sheep and other Ruminantia; that in them they assume a vesicular form, instead of becoming developed into true tape-worms; but that this change takes place as soon as the proper habitation is secured for them. The possibility of the ova of the *Tæniæ* of animals of one order, as for instance the dog, becoming conveyed into the stomach of those of a different order, such as the sheep, &c., derives confirmation from a fact which has come under my own observation, viz. that it is common for dogs to discharge from their bowels separate detached joints or articulations of tape-worms in great quantities. Some months ago, a considerable number of these detached articulations, which were found adhering to the hinder parts of a favourite pet dog, were forwarded to the British Museum; and it is a curious circumstance, that since this paper was written, another instance of the same thing has occurred to one of the members of this Club. Several detached joints of a *Tænia* have very recently been forwarded to me by our Secretary for examination, with the information that they came from a pet dog belonging to Mr. Clark of Belford Hall. The species of tape-worm is the *Tænia cucumerina*. Now it is very possible that the articulations containing (as we know they do at times contain) mature ova, may be ejected by the dog on the moist grass in the fields, and from thence conveyed along with the food into the stomach of the sheep grazing in the meadow; there to take on an encysted form, and assume the character which suits their new habitation.

List of Species of Entozoa, at present known as occurring within the limits of the Club.

Order I. NEMATOIDEA. Family FILARIIDÆ.

1. ? *Filaria marina*, *Cat. Brit. Mus. Entozoa*, 7. no. 8.
Filaria piscium, *Rudolphi, Hist. Nat. Entoz.* ii. pt. 1. 74. no. 29.
Hab. Liver of the common cod, *Morrhua Callarias*, from Berwick Bay. From the collection of Dr. Johnston.

Family ASCARIDÆ.

2. *Oxyuris curvula*, *Cat. Brit. Mus. Entozoa*, 15. no. 3.
Oxyuris curvula, *Rudolphi, Hist. Nat. Entoz.* ii. pt. 1. 100. t. 1. f. 3-6.
Hab. Intestines of the horse, *Equus Caballus*, Berwickshire. From the collection of Dr. Johnston.
3. *Ascaris lumbricoides*, *Cat. Brit. Mus. Entozoa*, 16. no. 1.
Ascaris lumbricoides, *Linnaeus. Rudolphi, Hist. Nat. Entoz.* ii. pt. 1. 124.
Hab. Intestines of man. From the collection of Dr. Johnston.
4. *Ascaris mystax*, *Cat. Brit. Mus. Entozoa*, 18. no. 5.
Ascaris mystax, *Rudolphi, Hist. Nat. Entoz.* ii. pt. 1. 140.
Hab. Intestines of the cat, *Felis Catus domesticus*. From the collection of Dr. Johnston.
5. *Ascaris megaloccephala*, *Cloquet. Cat. Brit. Mus. Entozoa*, 19. no. 10, & 109.
Ascaris lumbricoides (part.), *Rudolphi, Hist. Nat. Entoz.* ii. pt. 1. 124.
Hab. Large intestines of the horse, *Equus Caballus*, Berwickshire. From the collection of Dr. Johnston.
6. *Ascaris spiculigera*, *Cat. Brit. Mus. Entozoa*, 25. no. 29.
Ascaris spiculigera, *Rudolphi, Hist. Nat. Entoz.* ii. pt. 1. 168.
Hab. Œsophagus of the common cormorant, *Graculus Carbo*. From the collection of Dr. Johnston.

Family GORDIIDÆ.

7. *Mermis nigrescens*, *Cat. Brit. Mus. Entozoa*, 34. no. 1.
Mermis nigrescens, *Dujardin, Hist. Nat. Helminth.* 295.
Hab. Abdomen of a species of *Carabus*, Berwick-upon-Tweed. From the collection of Dr. Johnston.
8. *Gordius Tolosanus*, *Cat. Brit. Mus. Entozoa*, 36. no. 3.
Gordius Tolosanus, *Dujardin, Hist. Nat. Helminth.* 298.
Hab. Ponds and ditches in Berwickshire, &c. From the collection of Dr. Johnston.

9. *Gordius violaceus*, Baird, *Cat. Brit. Mus. Entozoa*, 36. no. 5.
Hab. Abdomen of *Carabus violaceus*, from Berwickshire. From the collection of Dr. Johnston.

Order II. CESTOIDEA. Family RHYNCHOBOTHRIDÆ.

10. *Tetrarhynchus grossus*, *Cat. Brit. Mus. Entozoa*, 68. no. 2.
Tetrarhynchus grossus, Rudolphi, *Synopsis Entoz.* 129 & 448. no. 2.
Hab. Abdomen of the salmon, *Salmo Salar*, from the Tweed. From the collection of Dr. Johnston.

Family TÆNIIDÆ.

11. *Tænia solium*, *Cat. Brit. Mus. Entozoa*, 70. no. 1.
Tænia solium, Linn. Rudolphi, *Hist. Nat. Entoz.* ii. pt. 2. 160.
Hab. Intestines of man. From the collection of Dr. Johnston.
12. *Tænia cucumerina*, *Cat. Brit. Mus. Entozoa*, 76. no. 15.
Tænia cucumerina, Bloch. Rudolphi, *Hist. Nat. Entoz.* ii. pt. 2. 100.
Hab. Intestines of pet dog, *Canis familiaris*, from Belford Hall. From Rev. J. D. Clark, of Belford Hall.
13. *Tænia elliptica*, *Cat. Brit. Mus. Entozoa*, 76. no. 16.
Tænia elliptica, Rudolphi, *Hist. Nat. Entoz.* ii. pt. 2. 195.
Hab. Intestines of common cat, *Felis Catus domesticus*, Berwick. From the collection of Dr. Johnston.
14. *Tænia calva*, Baird, *Cat. Brit. Mus. Entozoa*, 83. no. 37.
Hab. Intestines of the common grouse, *Lagopus scoticus*. From the collection of Dr. Johnston.

This species is described for the first time in the Catalogue of Entozoa in the British Museum. The grouse are known to be troubled with worms; and it might interest sportsmen to examine these birds when they appear, as they do in some seasons, sickly, and die in numbers.

15. *Bothriocephalus proboscideus*, *Cat. Brit. Mus. Entozoa*, 88. no. 4.
Bothriocephalus proboscideus, Rudolphi, *Hist. Nat. Entoz.* ii. pt. 2. 39.
Hab. Pyloric appendage of the common salmon, *Salmo Salar*, from the Tweed. From the collection of Dr. Johnston.

On Celtic Remains found in the neighbourhood of Wooler.

By GEORGE TATE, F.G.S.

Two cist-vaens, recently opened at Humbleton Buildings, near to Wooler, are interesting, because distinctly showing the mode in which the body, when buried entire, was placed in the rude Celtic sepulchre. These cists were found 6 feet below the summit of a rounded hill; they were formed of slabs of a hard sandstone belonging to the district, and were 5 feet long by 4 feet broad. In each cist was an entire skeleton of a human being; the head of the one lying towards the west, and that of the other towards the north. Both were bent up, the knees resting on the stomach, and the arms placed nearly around the neck. When first uncovered, the skeletons were perfect, with all the teeth entire; but soon after exposure, they crumbled into dust. Imagination need not be taxed for mysterious reasons to account for the doubling up of these skeletons, since this would, in most cases, be necessary when the body was interred entire, as the graves, formed only of single slabs set on edge, were usually shorter than the body of a mature human being.

In this neighbourhood several other Celtic remains have, at different times, been discovered. A cist was exposed by the plough in a field near Humbleton Burn in 1811; it contained an urn, and also the skeleton of a male, in a high state of preservation, which must have been fully 7 feet in height. About fifty years ago, another rude cist-vaen was found beneath a large tumulus or barrow in a field called "Stoney-vage," near to Humbleton House. This tumulus was formed of earth, clay, and blocks of stone, and rose to the height of 15 feet, with a circumference of about 150 feet. A large tulip-shaped urn, 16 inches in height, stood in the cist; and within it were found twenty-five beads of polished cannel coal. Thirteen of them were flat and quadrangular, varying from $\frac{1}{2}$ an inch to $1\frac{1}{4}$ inch across, and having a thickness of $\frac{1}{16}$ th of an inch; one of the largest was studded over with gold points, arranged in zigzag order; the other twelve were cylindrical, being $1\frac{1}{4}$ inch long and $\frac{1}{4}$ of an inch in diameter. All these beads were perforated; and when strung, the flat alternating with the cylindrical, they had been worn around the neck. A similar ornament was seen by Captain Carpenter, which was obtained from a barrow in Crookham Dean. The flat beads in this case were wedge-shaped, and the others round, and each one had two perforations. They were found strung on copper wire, and hanging around the neck of an urn.

Golden torques, beads of glass and enamel, and articles made

of bone were used as personal ornaments by our Celtic predecessors; these, however, would, owing to the value of the material or the difficulty of the manufacture, be confined to chieftains and persons of wealth. The more common ornament, especially for females, appears to have been made of jet and cannel coal, which could easily be obtained, and with little difficulty could be cut and tastefully arranged. I have seen several necklaces of these materials in the extensive and interesting museum of Mr. Bateman, near Bakewell; one of them was found around the neck of a female skeleton in a barrow on Middleton Moor in Derbyshire, and was formed of 417 beads, which were similar in shape and arrangement to those discovered in Northumberland.

A Letter from MISS E. BELL to the Secretary.

Spring Hill, August 22, 1853.

MY DEAR SIR,—On the 15th of this month, about seven in the evening, while Miss Hunter and I were walking in a lane between Loughton and Saintfoin, to the north-west of the village of Birgham, we saw two men on a rising part of the road coming towards us from the west. As these men came down the slope, we both at the same time observed that they were accompanied by two gray shadowy forms, exactly resembling themselves. Each shadow was placed to the north of the man it resembled, so that all four at times seemed almost abreast; though occasionally the shadows fell partially behind, so that their heads and shoulders only were then perceptible over the left shoulders of the men.

When they came nearer, so plainly were these two figures to be seen, that I began to fancy they were not shadows; but presently after all doubt vanished on perceiving them lengthen out till they became much taller than the two men, and so transparent that we could distinctly see objects through them. At last, when perhaps about fifty feet from us, these tall pale gray phantom-like figures entirely ceased to be visible.

At the time this occurred the evening was calm and gray, without a gleam of sunshine, and the air seemed perfectly free of all vapour: indeed we had been observing that the Cheviot Hills were particularly clear and beautiful; yet there might have been vapour in the air without our perceiving it, as there was some low ground at no great distance from us, which, though now under cultivation, was formerly marshy.

Miss Hunter and I are aware that such phantom-like appearances are not unusual in mountainous countries; but never

having either seen or heard of anything similar in this flat part of Berwickshire, we should very much like to have it explained to us. In fact, we know far too little of optics ourselves, to have a chance of accounting for what I have described, unless you have the kindness to enlighten us.

Believe me, dear Sir,

With sincere regard,

Yours truly,

ELIZABETH BELL.

On a Cist found at Broomhill, near Dunse.

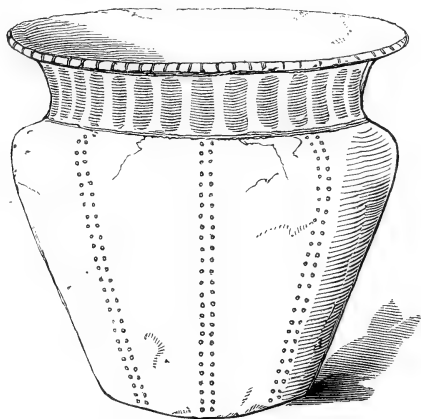
By WILLIAM STEVENSON.

IN January last, in ploughing a field on the farm of Broomhill, little more than a mile east from Dunse, Mr. Adam Black, steward on that farm, discovered a good example of the ancient "cist," or stone coffin. It consisted of four slabs of sandstone, of about 2 inches thick each, placed on edge so as to form an irregular quadrangle, the sides of which measured respectively 40, 36, 18 and 12 inches. The depth was about 20 inches, and the direction nearly due north and south. The cover consisted of a large irregular slab, about 6 inches thick, which being only partially covered with earth, was caught by the plough; and on being removed, the interior of the cist was exposed. Near the north end an urn was found, lying on its side, but quite empty. This was of excellent workmanship, and of a very elegant shape. It was about 6 inches high, and nearly the same in diameter at the lip and shoulder, between which it contracted a little, forming a collar, neatly ornamented on the outside. It tapered gradually from the shoulder to the bottom, where the diameter was $3\frac{1}{2}$ inches. It was ornamented by seven double rows of small round pits, running from the collar downwards. It was formed of a coarse imperfectly baked clay, which appears to have been procured from the immediate neighbourhood, where a similar clay, derived from the disintegration of a variety of amygdaloid, which is rather rare in Berwickshire, may still be met with. It was in such a fragile state, that it broke to pieces on being handled; but the fragments were carefully preserved.

The only other relics found in the cist were a portion of a skull and a few fragments of bones. These were tolerably well preserved, so much so that the absence of the remainder of the skeleton appears rather difficult to account for. The cist was situated upon the summit of a conspicuous knoll called the "Piper's Knowe." Similar cists have been found within the last twenty years at Chalkielaw, Swallowdean and Dunselaw—in each

instance apparently solitary. That discovered at Chalkielaw, within half a mile of the Piper's Knowe, also contained an urn, though of a different shape and style of ornament.

The bones and fragments of the urn have been submitted by Mr. James Black to the inspection of Dr. Daniel Wilson of Edinburgh. Dr. Wilson expresses his conviction that the remains are referable to the "Allophylia" races, who inhabited Britain prior to the period of the Roman invasion. There can, at all events, be no doubt that they belonged to the same people to whom the similar cists, found near Lesbury in November 1850, are to be ascribed. See Mr. Tate's paper, read at the Meeting of the Club on the 11th of June 1851, which contains a very clear and interesting account of these cists, and the urns contained in them. Reference may also be made to Dr. D. Wilson's 'Pre-historic Annals of Scotland,' *passim*, for many interesting facts connected with cists, sepulchral urns, and the ancient inhabitants of our island, to whom these relics are probably to be attributed.



Note on the Habits and Economy of the Plecotus auritus, or Long-eared Bat. By P. J. SELBY, Esq., of Twizel-house.

IN an out-house at Twizel, where the spars of the roof meet together in the centre, a bat of the species *Plecotus auritus*, long-eared bat, has made a small vacancy at this junction of the timbers its habitat for some three or four years past. In consequence, I have been induced to take some interest in noticing the habits and economy of the species.

Hybernation, I find, extends in general from October to March, as few or no signs of being in an active or awakened state, such as fæces or the remains of insects upon the floor beneath, are to be seen during this long winter-sleep. As soon, however, as spring approaches, and the night-temperature rises to 46° or 48° , I find the bat on such occasions in full activity; and as the same temperature brings into active life a variety of nocturnal Lepidoptera, which appear to be the favourite food of this *Plecotus*, an abundant provision is ready for the support of this animal upon awakening from its lethargic condition. From the observations I have been able to make, it appears that the *Plecotus*, upon the capture of a moth, returns immediately to his retreat, and there devours the savoury morsel at his leisure, shearing off the wings of the insect at the shoulder with his sharp and cutting teeth. In this way the floor beneath the bat's retreat, after a successful foray during the preceding evening, exhibits the remains of the numerous victims that have fallen a prey to his voracious appetite. To give some idea of the success of our bat as a moth-catcher, the wings of the following species were found upon the floor beneath his retreat on the morning of the 19th of April last, after a warm and genial night, during which he had revelled in all the luxury of a determined gourmand. As the wings were quite perfect, with scarce a scale abraded from their surface, I was able to identify the species without difficulty. They consisted of numerous wings of *Orthosia stabilis*, *O. gracilis*, *O. sparsa*, *Semiophora gothica*, *Glæa satellitia*, *G. vaccinii*, and a single pair of wings of *Achatia piniperda*, a rare moth, and a species I had never taken or seen before at Twizel. Since the date above mentioned, our bat seems to have kept close at home, as I have not observed any additional spoils beneath his domicile. In fact, the temperature has since been sufficiently reduced to throw him again into the lethargic state.

The Acarides of Berwickshire specifically described.

By GEORGE JOHNSTON, M.D.

[Continued from p. 122.]

35. *BDELLA DORSATA*.

Bdella dorsata, Gervais in Walck. Ins. Apt. iii. 157.

Body ovate, rostrate and pointed in front, of a yellowish or pale orange colour with a large dark brown spot occupying the greater portion of the back, sparingly hispid; the venter pale orange, unspotted. Rostrum tapered from a thickened base, becoming rather suddenly narrower towards the apex, which is

bifid, sparingly hispid. Mandibles shaped like the rostrum, and of the same length, armed with two minute but unequal claws. Palpi of the same colour, but considerably slenderer than the legs, filiform, inserted near the base of the rostrum, and longer than it by the ultimate joint, five-jointed; basal joint minute; the second elongated, with a very few scattered short setæ; third and fourth very small and equal, with setæ on the top of each; terminal joint about a third shorter than the second, contracted at its origin, sparingly hispid, the somewhat truncate apex armed with two sharp setæ of nearly its own length. Legs eight, equidistant, of the colour of the body and about its length, tapering normally, somewhat hispid, the setæ either patent or pointing downwards: first pair shortest, second and third nearly equal, the hinder pair longer, all about equal in thickness; basal joint small, the second or femoral about four times as long, the third about half the length of this, the fourth or knee still shorter, the fifth distinctly slenderer and as long as the femoral; the sixth elongated, tapered, armed with more numerous and stronger setæ, and terminated with a pedunculated small hairy vesicle and a pair of slender sharp claws trimmed with hairs on the inner aspect.

This mite is a small species, and of the usual Apion-like shape, possessing only a moderate degree of quickness in its walk. It recovers its position with difficulty when laid on its back on a level surface; but, as it lives amongst moss, this accident can rarely or never occur to it.

The specific character may be derived from the colour, which is a pale yellow tinted with red on the body and all its members; but the large dusky spot which occupies the back is what renders the little creature most obvious to the eye. I believe it to be the *Bdella dorsata* of Gervais. The name suits our animal well; but there are some points in the description which seem to mark a difference, especially the apparent absence of eyes, of which, in *B. dorsata*, there are four, of a waxen red colour, imbedded in the black part of the back. Now, in our mite there is a red spot anterior to this dorsal patch, and near the middle of the back, but I could not determine that it was made up of eyes, nor would analogy lead us so to conclude, for the eyes, in this genus, are lateral when present.

Our species belongs to the genus *Bdella* as defined by A. Dugès, Ann. des Sc. Nat. 2de Ser. ii. p. 44.

36 ACARUS DESTRUCTOR.

Acarus destructor, Tuch. Gmel. iii. 707.

Mite minute, of a uniform white colour. Body divided into three segments, ovate-oblong, narrow in front, rounded behind,

armed with scattered bristles, of which those on the anal edge are the longest. Rostrum declivous, obtuse, armed with mandibles at the apex. Front with several bristles, two of them long and porrect. Legs eight, much shorter than the body, in two sets, colourless, subcylindrical, bristly, armed with a long bristle at the tibial joint; the tarsi with short stout bristles and claws; the anterior pair of legs are stouter than the posterior, and equal in size and length; the third pair longer than the fourth, which are the shortest of any.

This differs from *Ac. lectis* in being narrower behind, in the legs being proportionally shorter, in the colourless hue of the rostrum and legs, in having the last pair of legs shorter than the third pair, and in the greater distinctness of the mandibles. I could not discover the tarsal vesicles. The bristles vary in different individuals in length, probably from the points in some having been broken off. In one or two specimens there was a semicircular plate at the anus, from the upper surface of which two bristles originated. The larvæ have only six legs. The eggs are elliptical and smooth.

We virtuosi—the unhappy objects of some happy ridicule—would willingly permit the cheese-mite his full liberty in waste, could we exchange that liberty for the imprisonment of its brother mite, whose peculiar vocation it is to reduce to dust and ashes our cherished insects and skins, and other prized curiosities. No drawer is close enough to exclude him; and verily oft we in wonder ask, how the devil he got there*. Many recipes have been recommended to prevent its appearance; but none prove of any avail, although some of them are effectual enough in killing the insects when their presence is detected, usually however with some loss of perfection to the infected specimens†. They show a preference to dung-beetles (as *Geotrupes*, *Necrophagus*, *Hister*, *Aphodius*, *Silpha*, &c.) and to humble-bees, which have an abundance of animal matter in their interior; but they prey upon the entire class of insects. “One of the worst plagues of the entomologist,” say Kirby and Spence, “are the mites (*Acarus destructor*, Schrank.). These, if his specimens be at all damp, eat up all the muscular parts (*Lytta vesicatoria* being almost the only insect that is not to their taste), and thus entirely destroy them.” (Introduct. to Entom., i. p. 240.)

* Thus did the good Antony Van Leeuwenhoek wonder,—“And indeed I have often found mites feeding on things in places where I wondered they could so soon discover their food.” (Select Works, ii. p. 39.)

† As Leeuwenhoek has found that mites greatly dislike nutmeg, and are soon killed by its odour, it might be used to protect insect-drawers. (Select Works, i. p. 289.)

PROCEEDINGS

OF THE

BERWICKSHIRE NATURALISTS' CLUB.

The Annual Address to the Berwickshire Naturalists' Club, delivered at Bamborough, on the 13th September, 1854. By the Rev. GEORGE ROOKE, M.A., Vicar of Embleton, &c., and President of the Club.

GENTLEMEN,

I ACCEPTED the office of President of this Club in compliance with an established rule, which forbids any one nominated to the Presidency to refuse the honour conferred on him, however ill-qualified or unworthy of it he may judge himself to be. It is in compliance with our rules that I now venture to address you on retiring from the chair ; and in the performance of this, my last duty, I have especially to bespeak your indulgence. Original notices and observations on Natural History are not to be expected from one who, though he can join with the best of the Club in acknowledging the Creator's wisdom and bounty manifested in his works, yet has no pretensions to a scientific acquaintance with them.

It is, indeed, no more than may be reasonably expected in a Club composed of members of all professions—nor will it be a great inconvenience—if the annual address from the chair is

found to vary somewhat in its character from year to year, with the peculiar pursuits of the individual who happens to have been chosen to be President. On the present occasion,

“How the subject theme may gang,
Let time and chance determine;
Perhaps it may turn out a sang;
Perhaps turn out a sermon.”

If my address, Gentlemen, should savour most of the latter character, you must bear in mind that you have brought it upon yourselves, by your own act, in choosing a clerical President who is not a naturalist.

Last year the Club was congratulated on having attained its majority. This year it may be made matter of just congratulation that it has increased its progeny, and bids fair to be the parent stock of numerous descendants, another Naturalists' Club, formed upon the model of this, having started into life at Greenwich.

Several valuable papers upon the natural history and antiquities of this district have been read this year at the ordinary meetings of the Club; and these I now produce, viz. one by Mr. Henderson, entitled “Chirnside, its Church and Churchyard;” two by Mr. Selby, “On the Flight of Aphides, September 12th and following days, 1853;” and “On the Wasps observed within the limits of the Club;” by Dr. Johnston, “A Description of a specimen of *Eschara cervicornis*, from Embleton Bay;” by Mr. George Tate, “An Account of round-headed Porpoises or Caaing Whales (*Phocaena melas*), which came ashore on the Northumberland Coast on the 19th day of March 1854;” and we have a paper from Mr. Donaldson Selby, “On the Megalithic or Druidical remains of Carnac or Kernac in Brittany and in Jersey.”

I have been favoured by our Secretary with Notes of the Excursions made this year by the Club, all but one of which I was myself hindered from joining, by absence from the county during three of the summer months. These notes I will proceed to read:—

Embleton, September 7, 1853.—“The Members who attended this Anniversary Meeting were,—Mr. Tate, President, the Hon. Capt. Gray, Mr. Selby, Rev. G. Rooke, Mr. MacBeath, Rev. H.

Parker, Dr. Clarke, Mr. Clay, Mr. Embleton, Dr. Johnston, Mr. Home, Mr. G. R. Tate, Rev. J. Dixon Clark, Rev. M. Burrell, Rev. William Darnell, Mr. Craster, and the Rev. Mr. Rigge.

"The Club breakfasted with Mr. Embleton. After breakfast the Members visited the church, which has been recently enlarged and improved, so as to make it worthy of the sacred purpose to which it is devoted. Before starting on their walk, the President exhibited a series of fossil vegetable remains in sandstone, from the quarry near Swinton, in Berwickshire, which he seemed inclined to believe were fucoids. It was agreed that Mr. Tate should procure figures of the more marked specimens, and draw up a report for the Proceedings. Mr. Selby showed some leaves which were branched and divided like an elegant fern, and had the colour and texture of a purple *Jungermannia*. These were leaves of *Cardamine hirsuta*, modified by growing on wet stones in a burn, and probably in shade, and were not readily to be identified. The walk was directed to Beadnel. During it there were observed, a white variety of *Bartsia Odontites* in abundance, the flowers of some specimens very delicately tinted with rose-colour about the aperture; *Hyoscyamus niger*, which grew in many places on the line above the shore; the banks were covered with *Geranium sanguineum*; and, on spots, the *Parnassia* and *Gentiana amarella* abounded. A *Chenopodium*, presumed to be *C. rubrum*, was picked up in one locality, and one only; and this had been the site of a dunghill. As we walked across the sands of Beadnel Bay, many delicate *algæ* were seen in abundance, but all of them common species, with the exception of three. The most remarkable of these was *Desmarestia ligulata*, which has not been met with on the coasts of N. Durham or of Berwickshire. Two specimens of the very rare *Sphærococcus cristatus* were picked up; and numerous specimens of the beautiful *Dasya coccinea*.

"The party were interested in watching the blowings of several whales in the offing, which were there waiting upon the shoals of herrings; and on the shore the Limpet arrested us for a time, for here the animals had excavated for themselves holes in the rock, varying in depth from one-eighth to a quarter of an inch, in which they rested secure and irremovable by any storm that could roll over them. How the Limpet makes the excavation,

which is quite smooth and even at the bottom, and corresponding in shape to the periphery of the shell, has not been settled. It has been attributed to the chemical action of a secretion from the foot ; perhaps maceration in the ordinary mucous fluid which is always excreted from the foot, assisted with its continual motion, might be sufficient to produce the cavity. Mr. Hancock attributes this to the action of siliceous granules, which, he says, are imbedded in the sole of the foot, and make a part of its organization.

“Another object of interest led the Club still nearer to Beadnel, viz. a trunk of a fossil tree which stands erect, to the height of about 4 feet, on the face of a limestone quarry. The trunk is round, and about 2 feet in circumference. The root is not exposed, nor can the species be determined, although the fossil may be referred to the genus *Sigillaria*.

“After the refreshment of a good dinner, and the usual preliminary toasts, the President read the Annual Address, which was listened to throughout with interest and pleasure. On his nomination, the Rev. G. Rooke was unanimously elected President for the ensuing year. Mr. W. Stevenson, of Dunse, was admitted a Member ; and Dr. James Wilson, of Berwick, was nominated by Dr. Johnston and seconded by Mr. Embleton. Mr. William Boyd, of Cherry-trees, was proposed by Dr. Baird, and the proposal seconded by Dr. Johnston.

“There was next read a notice by Miss E. Bell, of certain shadows witnessed by her near Birgham. This paper gave origin to a conversation of interest relating to analogous phænomena, but none exactly similar could be remembered. The thanks of the Club were voted to Miss Bell for the communication.

“Dr. Johnston then read the following notices :—

“‘September 3.—To-day I saw a living specimen of the Death’s-head Hawk-moth, which had been caught at sea, about four miles from land, off Holy Island.

“‘September 1.—A Sturgeon was caught at the mouth of our river, which was 7 feet in length, and weighed 140 lbs. It was not the *Acipenser Sturio*, if Yarrell’s figure is a correct figure of that species ; nor was it the broad-nosed Sturgeon of Parnell. The scales on the back were very large and raised to a sharp edge, but not spinous nor curved backwards. There was no time given to make a description or figure ; nor have I had an

opportunity of comparing it with other species. It seemed to me the same as that usually found on our coast.' ”

October 12th, 1853.—“ There were present at this Meeting, Dr. Johnston, Dr. Clarke, Captain Carpenter, Rev. Joseph W. Barnes, Rev. J. Dixon Clark, Mr. Home, Mr. Clay, Mr. Tate, Rev. George Carpenter, Dr. Cahill and Mr. Logan. The party were breakfasted by Mr. Home. Afterwards, the Meeting being constituted by the senior Member present taking the chair, the Minutes of the previous Meeting were read and confirmed; and Dr. James Wilson and Mr. William Boyd were duly admitted Members.

“ The Meetings for the summer of 1854 were arranged to be as follows :—May, the 3rd Wednesday, Cornhill; June, the 3rd Wednesday, Bamburgh; July, the 3rd Wednesday, Blue-bell, Paulinsburn; August, the 3rd Wednesday, Powburn; September, the 2nd Wednesday, Bamburgh.

“ The Secretary exhibited specimens, beautifully preserved, of several *Algæ* which had been collected in Berwick Bay by Mrs. Alfred Gatty, and which were new and interesting additions to our flora. For this communication the vote of thanks of the Club was ordered to be given to Mrs. Gatty. Then, a notice of the hosts of Aphides which have lately appeared in the district, was read, from Mr. Selby; who also sent a still more interesting communication descriptive of our Wasps. Dr. Johnston next exhibited a skull of the Chillingham Bull; and a series of the Lepades, found in Berwick Bay, with the view of explaining the discoveries of Mr. Darwin relative to their sexes and generation. Mr. Tate exhibited some specimens of scales of fossil fish which he had just procured near Cockburnspath; and some beautiful specimens of fossil ferns from an adjacent locality.”

Cornhill, May 17th.—“ The Club resumed its meetings, and had a favourable day to begin upon. It breakfasted with the Rev. S. A. Fyler, who became the guide to those Members who spent the hours between breakfast and dinner in a walk of research. We were conducted first to the ‘Bathing-well plantation,’ flushed with a show of flowers that no horticultural society could emulate. A large extent of this plantation was covered with a *Myosotis*—either *palustris* or *sylvatica*—in large patches

and in full flower; and the beauty of those beds influenced the most indifferent to sights, and elicited unbounded admiration. There were beds of less extent, but of equal beauty, of the *Veronica Chamædrys*, occupying the drier ground; and the whole was intermingled and contrasted with the large blossoms of the golden-yellow Marsh Marigold. *Geum intermedium* was likewise remarkably abundant and ornamental. There were two varieties of it, one in which the plant had been impregnated with the pollen of *G. rivale*, and the other produced by *G. rivale* having been fertilized by *G. urbanum*. It was very easy to distinguish these hybrids; and the finest was that in which *G. rivale* was the mother plant. We found also, in this plantation, *Allium arenarium* in great abundance, *Listera ovata*, and *Dipsacus sylvestris*, the latter sparingly. We were next conducted to the site of a Roman encampment, whence there is a fine view of the country around; and thence we proceeded to Learmouth bog, about the best locality for the botanist in our district. The dry spring had made the surface sufficiently firm to enable us to penetrate into every part of the bog, but the vegetation was not far advanced. *Eriophorum vaginatum* showed best and farthest off; and the sight of such a pure-air moor plant was very grateful to such of us as are now pent up in the town's dust and smoke, albeit our young days were amidst the bogs and muirs that the cotton-grass whitens with its waving tresses, white and pure as the new-washed sheep that graze amidst its grounds. The Cranberry was abundant and partially in flower. *Cardamine pratensis* grew here very fine; and so did *Valeriana dioica*. We found a few tufts of the umbellate variety of *Primula vulgaris*; and a *Pyrola* was plentiful, but not in flower. There was a large quantity of *Salix repens*, and of *Salix tenuifolia*, its only habitat in our district. It was when we reached the place occupied by these willows jointly, and with small trees of the Birch, and bushes of *Salix aurita*, that we came upon the more especial object of our search, viz. *Aspidium Thelypteris*. The fronds were only lifting up their croziered heads, but it was easily detected, and there is great plenty of it here, so that we may hope that it will not be eradicated in our days. From this bog we returned by a road, partially adorned and sweetened with a profusion of May, to a lesser bog than the Learmouth one, but of the same character, yet not possessed of the Fern.

We found nothing in this bog we had not seen in the other; and so we returned to the Bathing-well plantation to renew and refreshen the enjoyment we had there in the morning. The extent and brilliancy of the show was, indeed, surpassing fine.

“At dinner we mustered a party of thirteen, viz. Dr. Johnston, Rev. J. Baird, Captain Carpenter, Dr. Clarke, Rev. Dr. Gilly, Mr. Home, Rev. S. A. Fyler, Mr. Tate, Rev. George Carpenter, Rev. Mr. Rigge, and Mr. Boyd,—with William Majoribanks, Esq., and Dr. George Douglas as visitors. These gentlemen were duly nominated as candidates for the membership.

“After dinner there was a good deal done in the talking-way, and much of it was very amusing. It was varied with some conversation more to the purpose of the meeting by Mr. Tate, who gave us an account of some fossil fish he had recently discovered at Lamberton, near Berwick; and he also exhibited the specimens he had collected this day on a walk down the Tweed-side as far as the Till. One of these was a specimen of *Stigmara ficoides*, with the rootlets attached. Dr. Johnston gave an account of a little worm that bores into the most compact bivalve shells on our coast, and showed a figure of it, under the belief that it was a nondescript; but he has since ascertained that the worm had been described by Örsted, under the name of *Dodecaceria concharum*.”

Bamborough, June 21.—“This Meeting was a very successful one. The Members who attended were Dr. Johnston, Mr. Embleton, Mr. Selby, Rev. J. D. Clark, Mr. Boyd, Rev. George Walker, Mr. Tate, Rev. S. A. Fyler, Rev. W. Darnell, and the Rev. L. S. Orde. After breakfast the party proceeded to ‘Monk’s house,’ where they took boat, and sailed on a voyage of discovery to the Ferne Islands. The sail was pleasant, and effected without any disagreeable incident; and every individual was gratified with the scene and the various objects which occurred. Circumstances prevent me giving a detail of what was noticed: my own specimens lie yet unexamined. I believe, however, that there was nothing got but what had been previously recorded as being found on these isles. We had the gratification of seeing the father of Grace Darling, and several members of his family; and on the landward isle we viewed with reverence the small and exquisitely beautiful chapel built by the liberality and taste of

the venerable Archdeacon Thorpe, who has dedicated it, with a propriety every one must feel, and with a gratitude we must all participate, to St. Cuthbert,—who had here his cell and chapel.

“After dinner the Minutes of the Cornhill Meeting were read; and Mr. W. Majoribanks and Dr. George Douglas were admitted Members. The Secretary next gave a short account of some recent additions to the Flora and Fauna of the district. He next read a paper entitled ‘Chirnside, its Church and Churchyard,’ by Mr. Henderson; and laid before the meeting a paper by Mr. Donaldson ‘On the Megalithic Stones found in various parts of the North of Europe.’

“Mr. Tate now read a very excellent report on the capture of a herd of the *Delphinus deductor*, on the coast near Beadnel.

“Dr. Stewart, of Chirnside, was proposed as a Member by Dr. Wilson; seconded by Dr. Johnston: and the Rev. Frederick Robinson Simpson was proposed by the Rev. W. Darnell; seconded by the Rev. George Walker.

“Mr. Embleton brought a most interesting collection to exhibit. It consisted of three large and fine specimens of *Gonias-ter abbensis*; *Comatula rosacea*; a living specimen of *Eschara foliacea*, and another of *Eschara cervicornis*. The two last had not been found previously on these northern shores. There were likewise shown several of the rarest of our native shells, but they were not from our district.”

The Blue-bell, Paulinsburn, July 19th.—“The Meeting was an entire failure. Mr. Jerdan came from beyond Jedburgh, and finding no other member, he left about noon: shortly afterwards Captain Carpenter arrived with a friend; and they also left without constituting a club. From Mr. Jerdan I received the following letter:—

“‘Mossburnford, 20th July, 1854.

“‘Dear Sir,

“‘I reached the ‘Blue-bell’ yesterday morning about half-past ten, but none of the Club had made their appearance, though the landlady had expected a number to breakfast. After waiting a short time, I took a stroll through the village of Crookham down to the river-side. On returning to the inn, I still found that no Members had appeared, and I therefore set off, about twelve o’clock, on my way homewards, as I had a long ride

before me. Near Crookham I found a plant new to me, viz. *Malva rotundifolia*. It is a much prettier plant than the common Mallow. I observed also several plants which do not occur in this district, viz. *Ballota nigra*, *Parietaria officinalis*, and *Sinapis alba*, in the neighbourhood of Crookham; and *Cerastium arvense*, near Wark, on my way home. I also observed on the road between Kelso and Coldstream, on my way down, a quantity of Parsley (*Petroselinum sativum*), on a dry bank by the road-side, and apparently wild. *Scirpus lacustris* appears to grow in the pond at Paulinsburn, and some other plants which I could not make out from the road. The road-sides between Cornhill and Wark were quite blue with the beautiful *Geranium pratense*; and *Tanacetum vulgare* was also most abundant.

“ ‘Yours truly,

“ ‘ARCHIBALD JERDAN.’ ”

Powburn, August 16th.—“ The locality is difficult of access, but in every respect otherwise well fitted to be a field for the Club’s exertions and researches. Partly from its inaccessibility, and partly from the uncertain state of the weather, few members attended. These were, the Rev. G. Rooke, Dr. Johnston, Mr. Collingwood, Ralph Carr, Esq., Mr. Tate and Mr. G. R. Tate. A walk begun after breakfast was abruptly stopped by heavy rain, and the members found nothing better to do than to beguile the time by desultory conversation, under the shelter of a cartshed. The very little that was noticed will be brought before the Club by Mr. G. R. Tate, in a separate communication.

“ After dinner the Minutes of the two previous Meetings were read and confirmed. Dr. Stewart and the Rev. F. R. Simpson were admitted Members. The Rev. Mr. West was proposed by Capt. Carpenter, and seconded by Dr. Johnston; and George Cully, Esq., of Fowberry, and Mr. Charles Rea, of Doddington, were proposed by the Rev. H. Parker; seconded by R. Carr, Esq.

“ Dr. Johnston gave a description of the *Eschara cervicornis*, from Embleton Bay. No other communication was made.

“ On the day previous to our meeting, I made a short walk amid the Cheviots, which, in a natural-history aspect, was most unproductive. On an old dyke above Ilderton, on the road to the Dod, *Sedum album* grew in great beauty and profusion, and

although it is now naturalized, the suspicion remains that it has come from the garden originally. A hind's garden-plot is not far off, and the house was long tenanted by the blacksmith, a sort of man not unlikely to cultivate a flower of its class. On crossing the moor, *Listera cordata* repeatedly occurred ; and the *Scutellaria galericulata* was found in rough boggy ground, amidst the alders that grow on the higher parts of Lilburn stream. Here all our common Ferns grow luxuriantly ; but no rare species. I crossed now to Roddam-burn, which I followed down to and through its romantic and beautiful dean, without being rewarded by any new discovery. *Valeriana succisæfolia* grew here in great profusion, and few plants of it could be referred to *V. officinalis*. There was really no plant of any rarity noticed, unless it were *Cnicus heterophyllus*, which was gathered near the lower part of the dean. *Campanula latifolia* was abundant in the dean. No animal was noticed beyond the Rabbit. The Carrion Crow, Grouse and Black Cock were the only birds ; and the rarity of the insect tribe was remarkable. This was easily accounted for by the wet condition of the moors, and the heavy rain that fell at intervals, soaking everything. Even the Black Snail was seldom seen ; and others had remarked its scarcity during the season. In Roddam dean I picked *Helix arbustorum*, *caperata* and *fusca*. I noticed *Limax brunneus* occasionally on moss-grown banks ; and *Zonites crystallinus* was found repeatedly at the roots of such mosses as grow in tufts."

Before quitting the chair, I would say a few words upon a question which has occurred to my mind frequently and forcibly, especially in my walks with the Club, when our attention has been attracted by the beauty of the scenery, the luxuriance of the crops, and the rich and endless variety of the natural productions of this district ;—the question occurs, can this fair landscape be still under a curse, such as was laid on Adam ? 'Cursed be the ground for thy sake : in sorrow shalt thou eat of it all the days of thy life.' I cannot but believe that this curse, once laid on the ground, has since been removed. It is for those who have penetrated deepest into the secrets of nature to say whether they can detect unequivocal signs of a curse or otherwise, in the various productions of the earth. To a superficial observer, it appears rather that all we see around us tends to minister to

man's use and enjoyment, than that the ground is under a curse, and that man is doomed to partake of the fruits of it in sorrow.

But it is safest, perhaps, to reason, upon a sacred question like this, from the sacred records themselves : and, in the first place, I cannot detect in our walks through this district any of those signs of a ground which the Lord has cursed, which the Scripture itself leads us to look for ; such as that which was said to Cain : ' When thou tillest the ground, it shall not henceforth yield unto thee her strength.' Lamech too, the father of Noah, speaks as if he were smarting under the pain of profitless labour, when he complains of ' The work and toil of his hands because of the ground, which the Lord hath cursed.' The practical agriculturist knows that the ground does not now withhold her strength from the skill and perseverance that seek to bring it out.

The barrenness of a land that is cursed is described in another place of Scripture, in terms such as these (Deut. xxviii. 23, &c.) : ' Thy heaven that is over thy head shall be brass, and the earth that is under thee shall be iron. The Lord shall make the rain of thy land powder and dust.' This cannot be said of the land we inhabit, in which we see seed-time and harvest, cold and heat, summer and winter, day and night, following each other in regular succession.

Neither can I reconcile with the notion of a land that is cursed, the Scripture account of the state of some parts of the world in times not many years after the flood ; such as that which Lot occupied : (Gen. xiii. 10.) ' Lot beheld all the plain of Jordan, that it was well-watered everywhere, even as *the garden of the Lord* : ' or that glowing description given by Moses of the Land of Promise : (Deut. viii. 8 and xi. 11.) ' A land of wheat and barley, of vines, fig-trees and pomegranates ; a land of olive oil and honey ; a land whose stones are iron, and out of whose hills thou mayest dig brass.' ' It is a land of hills and valleys, and drinketh water of the rain of heaven. The eyes of the Lord thy God are always upon it from the beginning of the year even unto the end of the year.' This land at least was not under a curse.

I think therefore there is great reason for interpreting in its literal sense the promise made to Noah after the flood : ' I will not again curse the ground for man's sake ' (Gen. viii. 21) ; and

that the original curse laid on the ground was then cancelled. And the more so, because we read in Scripture that every blessing and privilege regarding the earth and its produce conferred on Adam at the time of his creation, was repeated almost verbatim to Noah, and even enlarged ; so that in regard to the earth on which he trod, Noah was in no respect in a worse position than Adam was when he stood in his first innocence.

If it is said that the original curse must remain, because man must still ‘eat bread by the sweat of his brow,’ and that ‘the ground still brings forth thorns and thistles,’ I confess I can detect no great physical evil in the existence of these thorns and thistles, and other weeds, *such as they now are*, of which indeed there seems to be a great abundance and variety, to supply occupation to the botanist, and to furnish his box with specimens ; but certainly they do not deform the earth’s surface, and they appear to have each their appropriate usefulness. No one will say of this district that it is a mere nursery of thorns and thistles.

And if man must still labour for his bread, so, it must be remembered, was Adam put into the Garden of Eden ‘to dress it and to keep it.’ Adam certainly had his share of work ; and who will venture at this day to specify the amount of labour which may have been necessary to check the superfluous growth of the weeds or wild flowers in Eden ? Or who will assert that the exercise of remunerative labour is a curse to man,—or that it does not add to his happiness, and is necessary to it ? ‘Labor voluptasque, dissimillimâ naturâ, societate quâdam naturali inter se sunt juncta.’

I will not, however, Gentlemen, practically confute this part of my own argument, by condemning you to the tedious labour of listening to the further prosecution of this subject, but retire with the hope that we may for years to come enjoy the self-imposed labour of making many a long pedestrian excursion over the hills and by the burn-sides of this county ; and that the gratifying labours of science may continue to produce among us such fruits as they have already yielded in the books of more than one distinguished Member of our Club.

One remark more only I would add, viz. that the manifest removal of the curse of physical evil from the ground leads the mind to look forward with hope and confidence to the time when

moral evil also shall be gradually abated, and 'the earth shall be full of the knowledge of the Lord, as the waters cover the sea.'

MISCELLANY.

1. *Viola flavicornis*, Smith. On Holy Island Links, scattered. A small variety of the *V. canina*, Sm., grows abundantly on the same links, and care must be taken not to confound the species.

2. *Potamogeton prælongum*. In the Tweed at Birgham, Dr. R. D. Thomson. I have specimens from this habitat from Miss E. Bell and Miss Hunter. The species occurs also in the Tweed at the Chain Bridge, intermingled with *P. lucens*.

3. *Glyceria distans*, Smith. On the shore near Goswick, Mr. R. H. Clay.

4. *Asplenium germanicum*. "Specimens were sent to me last month from Minto Craigs, R.; and it was said to grow in some abundance in particular spots. On Minto Craigs grows also *Asplenium septentrionale*." A. Jerdan. Sept. 11th.

5. *Eolis coronata*. On the shore in front of the Coves in Holy Island.

6. *Echinus lividus*. In the same locality.

G. J.

Note on the Flight of Aphides, September 12th, 1853, and following days. By P. J. SELBY, Esq.

ON Monday the 12th, and two following days, the weather being remarkably calm, with a warm, hazy atmosphere, millions of winged Aphides filled the air in every direction, not only at Twizell, Belford, Bamburgh, &c., but to a very wide extent, as the same phænomenon was observed at Dissington, not far from Newcastle, and in all probability prevailed over the whole extent of the county. The Aphides during the first two days appeared all of the same species, being a small greenish-black kind, such as infests the peach, plum, padus, &c. On the morning of the 14th, upon inspecting the leaves of the peach and nectarine trees in the garden at Twizell, the lower surface of every leaf was found beset with winged Aphides, which had already given birth to thousands of young larvæ; for upon inspecting the leaves with the microscope, I found what I had at first imagined to be eggs, were in reality young Aphides in an active state. Thousands had also settled upon the leaves of the rose, padus, &c., where the same rapid process of reproduction was going on. From the observations I have been able to make, the whole of this innumerable host were impregnated females, ready to produce their young the moment they alighted upon a leaf suitable to the œconomy of the species. As may be supposed, millions perished without attaining the object in view; and it was a curious sight to see the webs of the various spiders thickly covered with the prey their meshes had entangled, producing on the aggregate a rich repast to the weaver of the snare. On the 15th, I observed, among the myriads which still filled the air, a second species, of a lively pale-green colour, but not in such numbers as the dark-coloured species. The Aphides continued to appear in considerable numbers for several days afterwards, whenever the air became still, warm, and moist. It may be worthy of remark, that this extraordinary flight of insects was, as remarked on a former occasion, contemporary with the outbreak of that dreadful scourge, the cholera; this fatal endemic having broken out at Newcastle with a virulence far beyond its former ravages, at the time the Aphides came forth in such countless myriads. This apparent connexion between this fearful disease and the flight of the Aphides, results, I imagine, from the peculiar state, whether electric or magnetic, as well as the warmth, moisture, and calmness of the atmosphere; these qualities being apparently required, or at least conducing to render the virus of the disease more violent and concentrated, and at the same time being such as to favour the development

and flight of the delicate-winged and easily-injured body of the Aphis. I have been informed, that the electric forces at the time were in a most anomalous state, the telegraphs on the railroad refusing at one time to emit a spark or convey intelligence, and at another acting with great intensity.

Description of Aphis.—Antennæ with the three basal joints black, the setaceous part dark dirty-green. Head and thorax black; abdomen in most of them dirty-ochreous, yellow spotted, and varied more or less with black. Nectaria a little longer than the abdomen, dark. Legs, the thighs dark at the top, tibiæ light greenish-yellow, the feet dark. Wings clear, transparent, with the nervures pale dirty-green.

Description of a specimen of Eschara cervicornis, from Embleton Bay. By Dr. JOHNSTON.

CORAL calcareous, dirty-white when dead, buff-orange when recent, rooted by a calcareous basis, frondose, expanding laterally, very much and irregularly divided, the divisions flat, kneed, occasionally anastomosing, irregularly or dichotomously subdivided, with the ends often bifid and slightly dilated, the margin smooth, uneven. The apertures of the cells open on both sides, and are arranged in lines, but in the older portions of the coral this linear arrangement becomes obscurely marked. The apertures are quite visible to the naked eye; and the space between them is porous, but the pores are punctiform and not to be seen without a magnifier. The cells lie in a double layer, and are separated by a wall or lamina behind. In newly-formed portions of the coral they are slightly raised and rounded towards the aperture, which is roundish, with a thin margin and a sinus on its proximal side overlooked by a small denticle. But in the old coral the cells are irre recognizable and entirely immersed, the apertures circular, with a compact smooth depressed rim, which is entire and level with the surface. The old parts of the coral become also thickened by a deposition of new cells on the surface; these are raised or mammiform, and many of them have no aperture developed.

This description is derived from a specimen procured by Mr. Embleton, in Embleton Bay, and exhibited to the Club at the meeting on the 21st June. The specimen is three inches in its lateral expansion, and one inch in height: the breadth of a division varies from $\frac{1}{10}$ th to $\frac{2}{10}$ ths; and its thickness from less than a line to about two lines. A small specimen of *Cellepora ramulosa* grew in its interstices; and about the base there was a very perfect specimen of *Lepralia variolosa*.

I have Mr. Busk's authority for stating that our coral is the *Eschara cervicornis* of his Catalogue of Marine Polyzoa, p. 92. He is of opinion that it is identical with the *Cellepora cervicornis* of my 'British Zoophytes.' The two specimens differ in habit, one being attached by a solid expanded base, the other by a cementation of the segments;—the *C. cervicornis* is, moreover, more erect in its mode of growth, and more solid in its texture; but these differences may be the result of age, and of peculiarities in the sites wherein the corals were developed.

It would seem that although *Eschara cervicornis* has been often mentioned in works on the British Fauna, there are very few instances known of its occurrence on our coast. Dr. Fleming has not included it in his 'History of British Animals,' so that the evidence for its being a native production must have been weak when that very valuable work was published. The specimen described in my 'British Zoophytes' was procured from the coast of Devonshire. Mr. Busk did not know the exact habitat of his British specimen, for he seems to have seen only one. Thus Mr. Embleton's is the third known British specimen, and it is the more valuable as the locality is fully ascertained.

An Account of a herd of Round-headed Porpoises, or Caaing Whales (Phocæna melas) which came ashore on the Northumberland coast on the 19th day of March. By GEORGE TATE, F.G.S.

EARLY on Sunday morning, the 19th day of March last, a number of Cetacea were found stranded among the rocks near to Howick Burn Mouth. I visited the spot on the following day, and saw thirty-five of these animals on the rocky shore, most of them near to the high-tide mark. Fishermen had commenced cutting off the blubber; but as several individuals were untouched, I had ample means of examining them, and determining the species, which proved to be the *Phocæna melas*. I may be able to add little to what is known of the structure and habits of these strange-looking animals; yet as their appearance on our coasts is a rare event, it deserves a record in our Proceedings.

The *Phocæna melas* belongs to that division of the order Cetacea which is characterized by the palate being destitute of baleen or whalebone, by the jaws being furnished with teeth and by the external orifice of the blow-hole being single. In, the genus *Phocæna* both jaws have numerous simple and equal teeth, the head is obtuse, not beaked, and there is a dorsal fin.

PHOCÆNA MELAS.

Specific character.—Head convex and rounded on the top, truncated in front. Teeth conical and curved inwards at the point, about twenty-four in each jaw. Pectoral swimmers long and narrow.

Synonyms.—*Delphinus melas*, *Traill*; *Delphinus globiceps*, *Cuvier*; *Delphinus deductor*, *Sowerby*; *Delphinus melas*, *Fleming*; *Globicephalus deductor*, *Jardine*; *Phocæna melas*, *Bell*.

The species was first distinctly described and named by Dr. Traill in 1809, to whom, and to Mr. Neill, we are indebted for most of the information we possess of its habits and distribution. Cuvier subsequently described it from a specimen found on the coast of France, and named it "*globiceps*," from the shape of the head. Dr. Traill's name, having the prior claim, ought to be adopted.

Most of the individuals stranded on the Northumbrian coast were from fourteen to sixteen feet long; the smallest was eight feet; and the largest, which was a male, was eighteen feet nine inches long, and ten feet in circumference in the thickest part, a little behind the head, from which it tapered gradually towards the tail. The head presented an extraordinary appearance, being high in front, short, and subglobose, with the jaws short, having an opening of only sixteen inches, the upper jaw being thickened, as if padded, and projecting slightly over the under, which is rounded in front. There were twenty-four conical, sharp and curved teeth in each jaw; in other individuals, the number varied from sixteen to twenty-four; they were distant from each and not opposite, so that when the mouth was closed they would interlock. On the top of the head, eighteen inches from the snout, was a single crescent-shaped blow-hole, with the horns directed forward; the eyes were small, and of a dark grey hue. The pectoral swimmers were five feet long, narrow, and pointed, and placed low down, two feet seven inches from the snout; the dorsal fin was cartilaginous, stiff, and relatively small, being three feet long and fifteen inches high, and situated five feet eight inches from the snout; the tail fin was cordate, and had a breadth of five feet two inches. The external skin was of a deep black colour, smooth and shining, excepting in front of the pectoral swimmers and along the belly, where the hue was paler, as if the black colour had been partially discharged. So exactly did this external skin resemble a modern india-rubber coat, that we might readily imagine the animal to be enveloped in an artificial waterproof covering, to enable it to range through the deep unharmed by the watery element. A quantity of blubber

covered the body; over the head it was twelve inches thick, and it varied from one to four inches in thickness over the other parts. A large individual, eighteen feet long, yielded fifty gallons of good oil, which sold for three shillings the gallon: forty gallons would be about the average produce of each porpoise. The flesh beneath the blubber was dark and coarse, resembling in appearance very coarse beef.

A few of these Porpoises were females; one must have had a sucking calf, for the teats, which were small, and rather less than those of a cow, on being pressed, readily yielded a thick white milk. Calves were taken out of four females; one was two feet long, another three feet and a half, and the largest, which appeared to be nearly mature, was six feet and a half long. From this difference in the size and age of the immature young, it would follow that the females have no definite season of calving.

Several of these animals lived during the whole of Sunday. When disturbed, they snorted through their blow-holes, or bellowed through their mouths; they struck their tail fins up and down with great force, and moved their pectoral swimmers as a bird does its wings; but they were very helpless, and quite incapable of altering the position of their huge unwieldy bodies. Thirty hours had elapsed before any of them were cut up. No food of any description was found in their stomachs; the interval between their being stranded and their death having been sufficient to digest all the food which might be in their stomachs when they came ashore.

Doubts have been expressed whether the noise occasionally made by Cetacea proceeds from the mouth or merely from the blow-hole. These doubts may have arisen from the different observers having noticed noises coming from one or other only of these organs. I think, however, it is pretty certain that the *Phocæna melas* at Howick Burn sent forth noises both from the blow-hole and from the mouth. Mr. Dunn, architect, of Howick, was present when one of these animals blew with great violence through the blow-hole, to relieve itself from irritation caused by a stone placed therein by an idle boy; the sound was dull, somewhat like the noise made by a blast through a large bellows. A fisherman stated to me that he observed that the cry made by another animal came from the mouth; he described it as resembling "the routing of a bull." Another of these Porpoises was pierced with a sword near to the pectoral swimmers, but no vital part had been reached, and the animal lay unmoved; it was afterwards stuck in the breast—a quantity of blood gushed out, and the poor animal, tortured with pain, roared tremendously; the rocks around appearing to quake.

Mr. Grey, of Longhoughton, who witnessed this, was confident that the sound proceeded from the mouth. It was very loud and hoarse, deeper than the bellowing of a bull, and more resembling the hoarse cry of the elephant.

The home of the *Phocæna melas* is in the northern sub-arctic seas. Herds of them not unfrequently come ashore on the islands of Orkney, Shetland, Færoe, and Iceland, where they are eagerly caught on account of the value of the oil derived from the blubber. In the Shetlands they are called the "Caaing Whale." Their descent on our coast is, however, a very rare event; so rare, indeed, that none of the living residents along the Northumberland coast ever saw or heard of a similar occurrence. Wallis, in his History of Northumberland, relates that "Sixty-three," of what he calls the Grampus Bottle-nose or Great Porpoess (*Delphinus Orca*), "came on shore at Shorestone, near North Sunderland, 29th July, 1734, about noon; sixty of them were between fourteen and nineteen feet long, and the other three about eight feet. They were all alive when they came on shore, and made a hideous noise, but were soon killed by the country people, who removed them one by one, with six oxen and two horses, and made about ten pounds by the blubber. The same kind of noise was heard in the sea the night before by the shepherds in the fields, when it is supposed they were sensible of their distress in shoal water." I have little doubt of Wallis's "Porpoess" being the *Phocæna melas*; for although the *Delphinus*, or rather *Phocæna Orca*, is gregarious, travelling together in companies of six or eight, they do not herd together in large numbers. Until lately, these two species were not well discriminated; they much resemble each other; but in the *Phocæna Orca* the pectoral swimmers are broad and oval, while in the *Phocæna melas* they are long and narrow; the head of the former is rounded and obtuse, but it is not truncated like that of the latter.

It cannot be uninteresting to inquire into the cause of a phænomenon, which seems to present itself only at intervals of about a century. The state of the weather will not, I think, account for the recent stranding of these Porpoises on our coast; for the sea, during some weeks previously, had been calm and smooth; westerly winds had prevailed until the preceding Saturday, when the wind veered to the north-east, but the sea was not raised or affected by the change. Nor can the event be attributed to any peculiar condition of the animals themselves, for they appeared perfectly healthy, and when cut up exhibited no symptoms of disease. The habits of the animal may, however, furnish an explanation. They are gregarious, going together in large herds, sometimes of two or three hundred, and

occasionally even of more than a thousand. According to Dr. Traill, each herd has its own leader, whom the others implicitly follow, so that, if perchance he should guide them wrong, they fall victims to their blind confidence. The northern islanders turn this singular propensity to their own advantage; for, on the appearance of a herd in their neighbourhood, they start in pursuit of them, and endeavour to drive the leader ashore, in order that they may secure the whole herd. These Porpoises not only simulate humanity in submitting to government and united action, but also in the force of their affections; they are said to be strongly attached to each other, and especially to their young; when one is stranded, or in danger, the others, on hearing the cry of distress, rush impetuously to his relief. Either cause may account for the disastrous fate of the Northumbrian herd; the leader may have missed his way in passing along an irregular and rocky coast, or one of the herd may have been intercepted by some of the rocks, which, at Boulmer Point, extend far into the sea, and the others, impelled by the amiable instincts of their nature, may have rushed heedlessly among rocks and shallows, from which they could not escape. Indeed, they must have come ashore with great violence, and even leapt out of the deeper water, since some of them were lying near to the high-tide mark. When the bonds of their society are broken, they appear to be miserably helpless; a few separated from the herd, unable to guide themselves, were taken at distant places; two of them at Craster, three miles north of Howick Burn, and one at Berlin Car, five miles to the south. One, indeed, of those at Howick Burn might have escaped, for the water in which it lay was deep enough onward to the sea for the purpose; but, deprived of his leader and of his companions, he made no attempt to escape, and quietly submitted to his fate.

Observations on the Wasps observed within the limits of the Club.
By P. J. SELBY, Esq.

[With a Plate.]

THE members of the family *Vespidae*, or Wasps, are in Britain restricted to species of the typical genus *Vespa*. By F. Smith, in his Catalogue of British *Hymenoptera Aculeata* contained in the British Museum, seven species are enumerated, viz.:—*V. crabro*, the Hornet; *V. vulgaris*, the Common Wasp; *V. Germanica*; *V. rufa*; *V. sylvestris*, Campanular Wasp; *V. Britanica*, Tree Wasp; and *V. arborea*, Northern Wasp.

Of these seven species, I have only been able (at least satisfactorily) to make out three as existing within the limits of

our district, viz. the *V. vulgaris*, *V. rufa*, and *V. Britannica*. I suspect, however, from two or three specimens I took some years ago, but which I have unfortunately mislaid, or lost, that the *V. arborea* of Smith may also inhabit the district; and as the *V. sylvestris*, Scop., the *V. holsatica* of Fab., has been met with as far north as Newcastle, it is not improbable that its limits may in time be extended still further to the north, or within the limits of our district. Of the three species above enumerated, the *V. vulgaris* is upon the whole most abundant, and more widely dispersed than either the *V. rufa* or *V. Britannica*, which, in consequence of their peculiar habit and œconomy, are confined to wooded and enclosed districts, as the former of these species makes its nest in hedge-banks, or among the roots of trees, near the surface, the latter suspending their nests from the branches of trees, outhouses, &c., whereas the *V. vulgaris* invariably nidificates in the earth, forming a cavity sometimes at a considerable depth and distance from the surface, the adit to it being usually the deserted burrow of the field-mouse or the mole.

It is scarcely necessary to remind the Members of the Club, that every wasp-nest originates with a single female* that has survived in her hybernaculum, or winter retreat, the severities of the previous winter storms; or that all the colony proceeding from her, and sometimes amounting, before the close of the year, to many thousand individuals, perish on the approach of cold weather, except a very limited number of impregnated females or queens, which disperse and look out for a safe retreat during the hiemal months. The period of egress from that dormant and inactive state is regulated by the temperature of the season; thus I find that the *V. Britannica* and *V. rufa* invariably appear in the spring before the Common Wasp, and as soon as the temperature rises to 48° or 50°, which sometimes happens early in April; the *V. vulgaris* is seldom seen before the first week in May. In consequence of this difference in the first appearance of these insects, the nests of the *V. Britannica* are already far advanced before the *V. vulgaris* has commenced her labours, and the colonies of the former species have reached their ultimate destination, viz. the production of males and females, the latter to become the founders of the next year's nests, before those of the *V. vulgaris* have reached a similar state. As Kirby and Spence, in their delightful and instructive work, the 'Introduction to Entomology,' as well as other authors, have already described the habits and œconomy of the Wasp, it is unneces-

* See Kirby and Spence, Introduction to Entomology, vol. i. pp. 374 and 507; and Westwood's Class. Ins. vol. ii. p. 248.

sary to enter into any detailed account of what must be familiar to most of our Members. I may, however, remark, that the diminutive nests seen in outhouses, and other situations, varying in size from the circumference of a shilling to that of an egg, and supposed to be the work of a particular species designated the Campanular Wasp, are only, in fact, the commencement of the nests of the species which thus suspend them, and which are left in this early and unfinished state either by the desertion or death of the parent queen.

In the composition of the paper-like substance which forms the exterior of the nests of the three species, I find but little difference; all of them forming it of particles of wood procured from gates, gate-posts, rails, &c., which have been exposed for some time to the action of the weather, and that is worked up into a paste with their saliva. There is, however, a considerable difference in the mode of applying this ligneous paper. By the Tree Wasp it is beaten and worked out in continuous tile-like sheets (see fig. 14) which overlap each other and encircle the whole circumference of the nest; by the *V. vulgaris* the sheets are formed of a round shape, and are made to cover the exterior in the manner of a pan-tiled house; in all, however, a beautiful provision to exclude rain and moisture from the interior of the nest is exhibited.

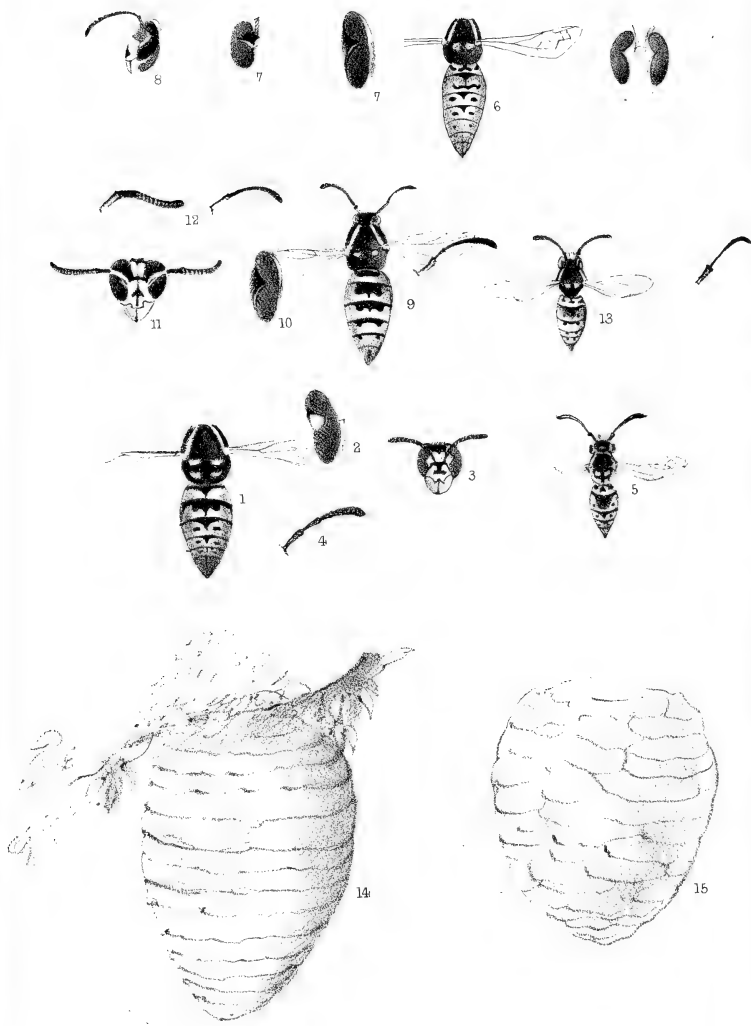
The drenching rains of the autumn and mid-winter of 1852, and the long and severe snow and frost storm we experienced during last February and the greater part of March, seem to have been fatal to dormant wasps, as well as other insects. Very few queens were observed or destroyed at the period they issue from their retreats; and as a convincing proof of the rarity of the different species at Twizell, I may mention that fruit of all kinds, a favourite food, has this season remained unbroken and untouched by wasps. In fact, at Twizell, contrary to what usually happens, I have not seen a single hanging nest in the woods, and have only met with one weak swarm of the *V. vulgaris*.

The distinctive specific characters of the three species appear to be as follows:—

Vespa vulgaris. Canthus, or that part of the head forming the emargination of the eyes, *entirely yellow*. Antennæ black. Tegulæ yellow. Scutellum,—the queen with *four yellow spots*; the workers frequently with six. The colour of the abdomen is also of a brighter yellow, and without the reddish-brown upon the first two segments possessed by most specimens of the other species. Nests in the ground.

Vespa rufa. Antennæ black. Canthus, or emargination of the eye, *black*, with a short and narrow yellow streak on the





lower or inner edge. Tegulæ yellow. Scutellum with *two* yellow spots. The first two abdominal segments generally tinged with yellowish-brown. Nests in hedges, and about the roots of trees immediately below the surface.

Vespa Britannica. Antennæ, with the scape, or first joint on the under or fore side, bright yellow. Emargination, or canthus of eye, black, bordered on the lower side by a narrow, short, yellow streak. Tegulæ brown. A yellowish-brown spot on the sides of the first two abdominal segments in most specimens. Scutellum with two small yellow spots. Nests suspended in trees, outhouses, hedges, &c.

All these species possess the anchor-shaped mark, more or less defined, upon the forehead.

The *Vespa sylvestris*, which I have mentioned as having been met with in the neighbourhood of Newcastle-on-Tyne, has the face plain yellow. The antennæ, with the frontal part of the scape, bright yellow. Two yellow spots on the scutellum. Abdomen bright gamboge-yellow barred with black, and without the side-spots possessed by the other species. Nests in outhouses, &c.

PLATE VIII.

- Fig. 1. *V. vulgaris*, showing the four scutellar yellow spots.
 2. Eye, showing the yellow canthus or emargination.
 3. Front view of head.
 4. Antennæ.
 5. Figure of a worker, showing the four scutellar spots.
 6. *V. rufa*, showing the two yellow scutellar spots.
 7. Showing the black canthus of the eye with the yellow streak.
 8. Side view of head.
 9. *V. Britannica*, showing the two yellow scutellar spots.
 10. Canthus of eye, black, with short yellow streak.
 11. Front view of head, showing the yellow portion of the scape of the antennæ.
 12. Antennæ, showing the yellow upon the scape.
 13. Figure of a worker.
 14. Nest of *V. Britannica*.
 15. Nest of *V. vulgaris*.

Since writing the preceding observations, I find, by a letter from Mr. Frederick Smith, of the British Museum, that the Wasps I took some years ago, and which I thought I had lost or mislaid, were in fact sent by me (a circumstance that had escaped my memory) to the Rev. H. Hope, and proved to be specimens of Smith's *Vespa arborea*. This species, therefore, may now be added to the list, and I expect another season may enable me to make a further addition in the form of the *V. Germanica*.

The specific characters of *V. arborea*, as sent to me by Mr. Smith, are as follows:—

V. arborea ♀. Head, the scape of antennæ yellow in front; the clypeus without marks, or with two indistinct ones; a narrow yellow line runs up the inner margins of the eyes, not, or seldom, reaching the notch. The scutellum with two lunate spots, but the metathorax below immaculate. Abdomen with a central spot and one on each side, not touching the margin of the base; the second segment has a narrow black basal band, a central spot, and an oblique one on each side, the rest usually immaculate. The posterior tibiæ have long black hairs.

N.B.—I recollect that the year these specimens of *V. arborea* were taken, wasps were particularly abundant.

Chirnside—its Church and Churchyard.

By GEORGE HENDERSON, Surgeon, Chirnside.

It has been said that there is a charm about a place having a history: we are afraid, however, that the historical associations connected with Chirnside are not of such a nature as to add much to the charms which render it lovely in our eyes. The locality owes more, we presume, to the amenity of its situation—the beautiful landscapes with which it is on every side invested, and the fertility and high state of culture which mark its fields and gardens; but what remains of its antiquities, however fragmentary they be, we are anxious to preserve, and in the following notice this we have attempted to perform.

The etymology of the name of the village and parish of Chirnside is involved in impenetrable obscurity. The idea that it is derived from *Chairn* or *Chirn**, (Brit.) a *Cairn*, and the Saxon affix *side*, is that which seems to carry the greatest number of votes. This denotes that the site of Chirnside was *originally* near or by the *side* of a *Cairn*, or monumental heap of stones. Now it is well known that there existed, about eighty or a hundred years ago, an immense cairn on the highest point of Chirnside hill—nearly at the distance of half a mile to the north-east of the Church. This cairn lay close to a farm-place called *Harelaw*—literally the hill of the monument—*Haar* in the ancient British signifying a stone or stones of remembrance. Those *hare-stones* were generally *monolithic* columns of rude stone set up as memorials of some important military action, or a sepul-

* *Carn*, or *Charn*, in the Cambro-British and Gaelic languages, signifies a heap, secondarily a sepulchral tumulus; and of this Gaelic word the oblique case is *Chairn*; and to this form of the word the Saxon settlers applied their affix *side*, to denote its position.—*Chalmers*.

chral monument for some distinguished hero or leader of ancient times. Now, at the period when the name was imposed on this locality, the cairn just alluded to was probably the most conspicuous object in the district; and what more natural to suppose than that the first *Saxon* settlers indicated their village and church as *the place by the cairn*, and for brevity's sake soon learned to name it *Chairn*, or *Chirnside*?

We have no means of ascertaining when Chirnside was first settled by our Saxon ancestors, or whether there existed previously in the locality any station, or temple, or place of worship belonging to the aboriginal inhabitants. It is certain that a church and place of defence were erected here at a very early period. The first lords or proprietors of the manor of Chirnside of whom we have any record were the redoubted Earls of Dunbar. The *church* and its pertinents were granted by the Scottish king, Edgar, to the Monks of Coldingham. There was then, at that time, a church here; and probably the western doorway, which still exists, and which we shall have occasion subsequently to mention, is part of the original structure. The constant tradition of the village is, that this portion of the church is as old as the Saxon Heptarchy.

In ancient times the Earls of Dunbar possessed here a stronghold, which was situated a few hundred yards south-west of the church. The spot on which this *castrum* stood is still called "*Harbour* or *Herber Knowes*"; and a fine spring of water, a little to the north, is pointed out as being the source whence was derived a supply to fill the deep fosse, ditch, or moat which surrounded the walls. The demolition of this "old strength" was not so long ago, says the Old Statistical Account, written in 1794, "nor so entire, but that the late beadle of Chirnside, and other old people, had seen its ruins, and its grooved stones carried off by the masons."

The manor of Chirnside was held by the above earls during the twelfth and thirteenth centuries. When Earl Patrick, the eighth of Dunbar, deserted the English interest, Edward III. granted a charter of the manors of *Chirnside* and *Dunse*, with the advowson of their churches, to his faithful adherent and soldier *Thomas de Bradestan*, in reward for his many efficient services. This deed is dated at Perth, and was confirmed at Berwick, October 5, 1336, three years after the disastrous battle of Halidon Hill. It is not known for how long *Bradestan* and his heirs possessed the manor of Chirnside*. *Bradestan* was

* It is probable that the Earls of Dunbar enjoyed again for some time the lands of Chirnside, with their other possessions, before their forfeiture in 1434.

to present the king yearly *a sword* for Chirnside, “reddendo per annum ensem, in festo Nativitatis Sti. Johannis,” but we find, that on the 20th June, 1451, the *King's lands* of Chirnside and Dunglass, which appear to have been for some time vested in the Crown, were granted to *Sir Alexander Home*, the first Lord High Chamberlain of Scotland. In 1489–90, Alexander, second *Lord Home*, had his lands of Chirnside and *Manderston* united to the barony of Home by charter bearing date 4th January of that year. A decree of the same Parliament which brought Lord Home to the scaffold in October 1516, confiscated his estates. *Chirnside*, with some of his other lands and titles, was however, restored to his son George, in August 1522, and confirmed to him by three successive Parliaments. In March 1646, these lands were granted to *John Home*, uncle of James, Earl of Home. About the period of the Revolution, those lands now called *Whitehall* were acquired by purchase from the Homes by a gentleman of the name of *Hall*, ancestor of the present *Sir John Hall*, Bart., of Dunglas. The last laird of *Whitehall*, as individual proprietor, was *William Hall*, Esq., who died at London, April 3, 1800. He was fond of chemical investigations, and possessed a fine apparatus for carrying out his experiments. After remaining in possession of the *Hall* family for nearly a century and a half, the estate of *Whitehall* was purchased, a few years since, by *Mitchell Innes*, Esq., of Ayton, the present proprietor and patron of the Church of Chirnside. The lower part of the estate, stretching to the *Whiteadder*, is beautifully adorned with lofty groves of oak, beech, ash, elm, &c., the most of which were planted by the *Halls*, shortly after it came into their possession.

We know little of the state of the *Church* of Chirnside in the times of old. In the ancient taxation, taken in 1176, “*ecclesia de Chirnesyd*” was rated at 50 marks. In *Bagimont's* roll, the tenth of the *rectory* of Chirnside is taken at £4. *Symon*, “*parsona de Chirnesyde*,” subscribed a charter of Patrick, Earl of Dunbar, between the years 1248 and 1289, “*de restitutione wardæ maritagii heredam de Nesbyth*.” The successor of Symon seems to have been *William de Blida*, or *Blythe*; he appears on the list of Berwickshire clergy who were necessitated to swear fealty to Edward I. at Berwick, in August 1296. In 1342, during the reign of David II., Patrick, Earl of Dunbar, annexed the advowson and property of the church of Chirnside to his newly-founded collegiate church at Dunbar, which was the first establishment of that kind known in Scotland, and thus constituted it a collegiate prebend. This annexation was confirmed by Landells, Bishop of St. Andrews; and more recently, by Henry, Bishop of the same diocese, on the 23rd October,

1429. At the same time that Edward III. bestowed the manor of Chirnside upon *Thomas de Bradestan*, he appointed his own chaplain, *John*, son of "*Roger Grey de Ruthyn*," to be prebendary. He, however, recalled him from that office in 1348, and vested the advowson in *Bradestan*, the new proprietor*. Except these few and unsatisfactory notices, we hear no more of the church of Chirnside till after the Reformation. In 1581 it is constituted a seat of a presbytery, which has continued to be held here till the present time.

The *Church* of Chirnside, surrounded with its "field of graves," lies at the foot of a gentle acclivity which is crowned by a long straggling village, here and there interspersed with single trees, or groups of the same, adding much to its picturesqueness and beauty. The view from the churchyard, especially looking to the south, is one of great richness, extent, and loveliness. The church itself is a long low building, of no pretensions to grandeur of design or structure. The only thing remarkable about it is the western door, which there can be no doubt is of great antiquity; but whether it is a *Norman* or *Saxon* arch, there has been some dispute; and we are not versant enough in the science of architecture to be able to clear up the doubt. A pretty correct representation of this doorway may be seen in *Carr's History of Coldingham*. When the church was rebuilt in 1572, the architect, with great care and good taste, preserved this fragment of the ancient structure. It projects a few inches from the line of the wall; and a few feet to the east of this door will be found fixed into the mason-work, a few links of an iron chain, to which was formerly attached a collar of iron or leather. This was an old instrument of discipline in the Scottish church, called "*The Joughs†*"—a sort of pillory, for a certain class of delinquents, such as those who were guilty of too vigorous scolding, brawling, fighting, swearing, drunkenness, &c. This mode of punishment has been long obsolete. In the front wall of the interior is a square tablet, which appears to have been taken from the erection of 1572, and built into its present site at the re-edification of the church at a more recent date. This stone bears the inscription "*Helpe Ye Pur, 1572.*" An addition was made to the church seventeen or eighteen years ago, when an aisle, or burial-vault, belonging to the *Lauders*, formerly proprietors of *Edington*, was removed. At the west

* On the 5th of August, 1450, *Sir Alexander Home* granted to the Collegiate church of *Dunglas*, four husband lands in Chirnside. On the 4th January, 1489, *James IV.* confirmed an entail of the lands of Chirnside, &c., to *Alexander Home*, the Great Chamberlain of Scotland, and grandson and heir of *Alexander, Lord Home*, and his heirs male.

† *Juggs, Joughs, Jogges*, may be derived from Lat. *jugum*, a yoke.

end of the church there is a gallery called "*Whitehall Loft*," and at the eastern extremity another gallery called "*Ninewells Loft*." Both these galleries are reached by flights of stone steps outside the church; and below the latter is a burial-vault belonging to the family of Hume of Ninewells, and in which repose the ashes of several generations. The belfry on the western gable of the church is a very small concern, and the bell, which emits a tone of very little effect, is rung from without.

Chirnside, like most of our border villages, was frequently subjected to the ravages of war; and, like some other border churches, it possessed a castellated tower for the protection of the villagers. This stood at the west end of the church, and was removed eighty or ninety years ago. At the interment of a person of the name of Middlemiss, in 1847, its foundations were exposed to view; a large hearth-stone and fire-place were laid open; and the foundations of ancient walls, which seemed to have been blackened by fire. The keeper of this tower in 1524 was one *Luke Aitcheson*, "a man," according to our informant, *William Crow*, "above the common strength of men in his day." He was slain by six freebooters, who made an attack upon the tower by night. He had repulsed this ferocious band, who withdrew, saying they would recross the water. The feint succeeded. The freebooters hid themselves in a thicket of broom near the ruins of Herber-knowes; and the valiant watchman was slain by them as he was, apparently, on his way to alarm the village and raise a pursuit. In the old times of feudal and border warfare, the villagers of Chirnside had two strong pends, vaults, or inclosures, near the *Cross Hill*, in which they penned their flocks and herds during night, for fear of the marauders from the English Border. They had also what was called a *Watchhouse*, a little to the east of the *Cross Hill*, or middle of the village; and when the villagers and their neighbours went upon a freebooting excursion, a large fire was kept up on this *Watchhouse*, or tower, during night, to direct them the right way home with their booty.

The *Session* records of Chirnside Church, extending back to some time before the Revolution, are not of great interest; but as they, in some instances, exhibit human nature in its stranger and more remarkable aspects, we had intended here to have given a few curious extracts, had our limits permitted; but as we have chiefly to do with the church, we will present a list of the *ministers* who have officiated here since the Reformation, in so far as we have been able to ascertain them.

1. *Mr. David Home* appears to have been the first minister of Chirnside after the Reformation. He was alive in 1597.

2. *Mr. Alexander Smyth* was minister here in 1609. He was a witness on the trial of *Mr. George Sprott*, notary-public in Eyemouth, who was condemned to death for concealing the treason of the Earl of Gowrie and Logan of Restalrig. With other ministers of the *Merse*, he was summoned before the High Commission at Edinburgh for nonconformity to some points pressed upon them by the Bishops, such as kneeling at the sacrament, &c. He and the others were true to their resolve, and the Bishop of St. Andrews (*Spottiswood*) could make nothing of them. *Mr. Smyth* was alive in 1625. He seems to have deceased soon after this date, as

3. *Mr. Johne Mackmeath* was minister in 1638. Of him we have the following notice:—

“ Dec. 11th, 1638. 18th Session of Assembly.

“ Much of the tyme being spent in sentencing bishopps; the rere of the session was fetched upp with the accusation and censures of some ministers, all *anti-covenanters* (for it is to be observed, that in these dayes nothings could be founde to be laide to the charge of any minister who took the covenant), by name *Mr. Andrew Lamb* or *Lawmont*, *Mr. Johne Mackmeath* (see Baillie's Letters, vol. i. p. 138), minister of *Chirnside*; *Mr. Francis Harvy*,—all accused of Arminianisme and lewde lyves, and *Mr. Christopher Knolls* (minister of Coldingham), who, to boote, was saide to have gottine a chylde in adulterye, which his wyfe caused a freende of his tacke (take) upon him to be father to. The triale of all these accusationes was referred to comittyes in the respective boundes where thes ministers lived.”

Gordon's Hist. of Scots affaires, vol. ii. p. 143.
(*Spalding Club Publication.*)

We have not been able to ascertain the time of *Mr. Mackneath's* decease.

4. *Mr. William Galbraith* was minister of Chirnside in 1660. We have no farther notice of him.

5. *Mr. James Lawtie* was admitted minister of Chirnside on August 26th, 1669; and was for nineteen years the Episcopal incumbent here, till the epoch of the Revolution compelled him to demit his charge. For some time after this he officiated as minister to a small congregation of Episcopalians in Eyemouth. When or where *Mr. Lawtie* died we have no accounts.

6. The next minister of Chirnside was *Mr. Henry Areskine*—a man who seems to have had few equals in his time. He belonged to the family of *Erskine of Shielfield*, near Dryburgh; and was appointed minister of *Cornhill*, in Northumberland, in

1649; from which place he was ejected for Nonconformity in 1662, and suffered much in the cause of Presbytery. Afterwards he was for some time minister of a Presbyterian congregation at *Reevelaw*, near *Whitsome*. Soon after the Revolution he was appointed minister of *Chirnside*, where he laboured till his death, on the 10th August, 1696. *Mr. Henry Erskine* was the father of the two eminent individuals, *Messrs. Ralph* and *Ebenezer Erskine*, the originators and fathers of the Secession Church of Scotland. It appears that the *Rev. Henry Areskine* had been in great poverty during his incumbency in *Chirnside*, as we find in the Session records the following notice confirmatory of the fact:—"Lent to *Mr. Henry Areskine*, June 11th, the year 1695, upon ticket which lies in the Box (the poor's box), the sum of £20 : 03 : 00." It appears that he had not been able to repay this during his life. But we find also in the same record the following extract, alike honourable to his widow, *Mrs. Areskine*, and the Session of *Chirnside*:—

"May 27, 1711.

"The Minister (*Mr. George Home*) represented to the Sessione that he had resieved from *Missstresse Areskine*, relict to the deceased *Mr. Henry Areskine*, sometime minister of *Chyrnside*, the soum of Sixteen Pound *Scottes*, in part of payment of a ticket of her late husband's for Twenty Pounds *Scottes*, lying in the Poors' Box. The Sessione, considering the said soume of Twentie Pounds has been long owing, and that the grait part of it is now paide, and that the said *Missstresse Areskine* is not well able to pay more of it, appointed the Ticket to be given up, and the said Sixteen Pound *Scottes* to be put into the poors' box."

A full account of *Mr. Henry Areskine* is prefixed to the Life of his son, the *Rev. Ebenezer Erskine*, by the *Rev. Dr. Donald Frazer* of *Kennoway*. The first Kirk Session of *Chirnside* after *Mr. Erskine's* settlement, consisted of the following members. These names appear in the Session book in the autograph of *Mr. Erskine*, May 20, 1691:—

Mr. Henry Areskine, *Minister*.
 David Home of *Ninewells*.
 George Home of *Chirnside Mains*.
 George Aitchessone, in *Chirnside*.
 David Richardsone, there.
 William Aitchessone, there.
 James Richardsone, there.
 William Dunbar, there.
 George Ralph, there.

David Cowan, in *Idington* (Edington).

John Cowan, there.

David Cowan, in *Ploughland*.

7. Mr. Erskine was succeeded in the pastorate of the parish of Chirnside by the *Rev. William Miller*, who was ordained on the 6th April, 1699; *Mr. James Ramsay*, of Eyemouth, preaching his ordination sermon, from 1 Tim. iii. 1. He was transported to Meikle in 1702. "He preached his farewell sermon on Nov. 8, from Isai, 53 chap., i. verse."

8. *Mr. George Home* succeeded him, being ordained minister of Chirnside March 13, 1704. "His ordination sermon was delivered by *Mr. Gilbert Laurie*, minister of Hutton, from Mat. 24 chap. and 45 v." His first Session consisted of the following Members:—"George Home; Paul Aitchesson; James Richardson; William Aitchesson; John Pearson, in Edington; Patrick Forman, in Chyrnside; William Tait, in Edington; Robert Guthrie, in Chyrnside Mill; and Alex^{dr} Cockburn, Sessione Clerk." In 1712 the following members were added:—"John Home, in Nethermains; William Bald, mason in Chyrnside; Alexander Cockburn, (not the Clerk); John Aitchesson, both in Chyrnside; George Landells, tenant in Chyrnside; and James Landells, in Blackburn." Mr. Home died about the year 1750. He was the proprietor of *Cadger Tower*, now Broadhaugh, in this parish; and we believe that the late Mr. Abraham Home, of *Gunsgreen*, and Minister of Greenlaw, was his descendant.

9. He was succeeded by the *Rev. Walter Anderson, D.D.*, who was ordained on May 13, 1756. Where or when he was born is not ascertained. He had an irrepressible ambition to be an author, and wrote and published many books, not one of which ever obtained any celebrity in the world of letters. His works are:—

1. "The History of Cræsus, King of Lydia, in 4 Parts. 1765."

2. "The History of France during the reign of Francis II. and Charles IX. 2 vols. 4to. 1769."

3. "The History of France, from the commencement of the reign of Henry III., &c. 1 vol. 1775."

4. "Two more vols. appeared in 1783."

"But these continuous efforts were not drawn forth by the encouragement of the public; they were solely owing to the desperate *cacoëthes* of the worthy writer, who would take no hint from the world—no refusal from fame. It is said that he was solely enabled to support the expense of his unrequited labour

by a set of houses belonging to himself in *Dunse**, (too appropriate locality !) one of which was sold for every successive quarto ; till at last something like a street of good habitable tenements in that thriving town was converted into a row of unreadable volumes in his library."—*Chambers*.

5. "The Philosophy of Ancient Greece Investigated in its Origin and Progress, &c."—This work is worthy of some praise, but it is entirely unknown to fame.

6. "A Commentary on the Psalms of David."—A large 4to volume.

7. He also wrote "The Old Statistical Account of Chirnside," about 1794 or 1795. It is one of the best of the whole series.

One of the last attempts of Dr. Anderson was a pamphlet "Against the Principles of the French Revolution." "This being not only written," says Chambers, "in his usual heavy style, but adverse to the popular sentiments, met with so little sale, that it could scarcely be said to have been ever *published*; however, the Doctor was not discouraged : adopting rather the maxim '*contra audentior ita*,' he wrote a ponderous addition, or appendix, to the work, which he brought with him to Edinburgh, in order to put it to the press. Calling upon his friend, Principal Robertson, he related the whole design, which, as might be expected, elicited the mirthful surprise of the venerable historian. 'Really,' said Dr. Robertson, 'this is the maddest of all your schemes. What ! a small pamphlet is found heavy, and you propose to lighten it by making it ten times heavier ! Never was such madness heard of !' 'Why, why,' answered Dr. Anderson, 'did you never see a kite raised by boys ?' 'I have,' answered the Principal. 'Then you must have remarked that, when you try to raise the kite by itself there is no getting it up ; but, only add a long string of papers to its tail, and up it goes like a laverock !' The Reverend Principal was completely overcome by this argument, which scarcely left him breath to reply, so heartily did he laugh at the ingenuity of the resolute author. However, we believe he eventually dissuaded Dr. Anderson from his design."—*Chambers's Lives of Eminent Scotsmen*.

Dr. Walter Anderson died 2nd June, 1800, after having been forty-four years minister of Chirnside. He appears to have lived and died a confirmed bachelor. He displayed little power as a pulpit orator, and was popularly reckoned a poor preacher. He appears to have borne through life an unblemished moral character, was a simple man as to worldly matters, and descended to the grave with the regrets of his parishioners.

* It is likely that Dr. Anderson was a native of Dunse.

A marble tablet to his memory is built into the front wall of the church.

10. The next incumbent of Chirnside church was the *Rev. Thomas Logan, M.D.*, a native of Lanarkshire. He was ordained April 16, 1801. The Doctor was one of those who, in conjunction with Brougham, Jeffrey, Sidney Smith, &c., established a society out of which originated "The Edinburgh Review." But it does not appear that he ever wrote anything for its pages. His Medical Thesis is said to be a piece of very elegant Latinity. The Doctor was evidently a man of superior talent, but was not distinguished as a preacher of the gospel. He died on the 30th January, 1838, aged 62 years.

11. The present minister of Chirnside is the *Rev. James Wilson*.

The churchyard of Chirnside contains fully an acre of land, and is clustered with an immense number of *grave-stones*, most of which are of a very common-place character. A very neat monument was recently erected by the Odd-Fellows Society to the memory of *J. Crosbie*, surgeon in this village. There is a small obelisk to the memory of *Thos. Begbie, Esq. of Mains*. The only other worthy of notice is that to the memory of the *Rev. Henry Erskine* mentioned above, raised by subscription in 1822. Near this obelisk, at the east side of the churchyard, may be seen his *original* monument, which is supposed to have been erected by his friend, the *Rev. John Dysert*, minister of Coldingham. It is what is called in Scotland a *through-stone*,—a broad horizontal stone placed on pedestals, and is inscribed with the following epitaph:—

" M. S.
M. Henrici Areskine
Pastoris Chirnsidis,
Qui obiit 10 Augusti 1696,
Ætatis suæ 72.

" Sanctus Areskinus, saxo qui conditor isto
Est lapis æterni vivus in Æde Dei,
Non astu lapis hic, technave volubilis ulla
Quippe fide, in Petra constabilitus erat.

" Under this stone there lies a stone,
Living with God above;
Built on a Rock was such a one,
Whom force nor fraud could move."

Notes of the Meeting at Powburn. By MR. GEORGE TATE, F.G.S.

THE Club met on the 16th of August at Powburn, which, being a locality not before visited, and remarkable, moreover, for its archæological remains, would, if the weather had not been unsettled and threatening, have attracted a large attendance. There were present, the President accompanied by his two Sons, Dr. Johnston, Mr. Collingwood, Mr. Tate, Mr. Carr, the Rev. H. Parker, and Mr. G. R. Tate, with Mr. Clay, junior. After breakfast, the party set off to examine the banks of the Breamish, and purposed, if time permitted, to visit the Camps on the neighbouring hills and the more interesting remains of an ancient British town near Linhope. A thunder-storm accompanied by a heavy fall of rain compelled the party to retrace their steps. In the course of the afternoon, however, Crawley Tower was visited, and the botany and geology of Crawley Dean were noticed.

Crawley is a high sandstone ridge overlooking the Vale of the Breamish. According to Mr. Carr, it was formerly written Crau-law, which is supposed to be a modified form of *Caer*, used by the ancient Britons to designate Roman forts, united with the Anglo-Saxon word *law*, which has a secondary meaning of 'hill.' On this commanding position a Roman Camp, a Peel Tower, and a modern farm-house are singularly grouped together. The Camp is distinctly Roman, being of a rectangular form, and near the line of a Roman road, the remains of which are yet visible eastward of Whittingham. On the west side, where the hill is steep, there is only a single rampier, but on the north side, which is naturally the weakest, a double rampier and a fosse are distinctly to be seen; the other sides have long ago been levelled; but their foundations have in course of draining been recently exposed; the whole originally enclosed about two acres. Within this Camp stands a Peel Tower—one of those fortified buildings which are peculiar to the Border districts, and which were erected to protect the inhabitants and their cattle against Border marauders. It is a massive oblong building, with the walls, excepting that on the north, tolerably entire, and having the enormous thickness of $8\frac{1}{2}$ feet. The north wall may have been battered down during some unrecorded attack by the Scots, for a forty-two pound cannon-ball has been found in the immediate neighbourhood. Some of the original windows yet remain; two of them in the south wall are double and pointed, and resemble those in the Barbican of Alnwick Castle; they indicate that this Tower was erected in the fourteenth century. These ancient walls now enclose a modern farm-house. Here, within a limited area, three widely different states of society are pre-

sented. The Camp tells of the military occupation of the island by a foreign power, which while it reduced to subjection the barbarous aboriginal tribes, whose fortlets and towns are scattered over the neighbouring hills, nevertheless introduced amongst them the elements of civilization. Both conquerors and conquered totally disappear; a more vigorous but turbulent race succeeded, and the Peel Tower marks a period of Border raids, of pillage, burnings and bloodshed. Another and a better change comes gradually over the scene; hostile yet kindred nations are united; civilization and the peaceful arts have progressed, and now at length the modern farm-stead, standing amid the decaying relics of troubled times, overlooks smiling hamlets and luxuriant fields, and sees, not far in the distance, hills and upland pastures on which thousands of sheep browse in perfect security.

In the walk towards the Breamish, *Ranunculus fluvialis* was seen in great abundance, adorning with its beautiful white flowers the surface of the Powburn; in the same water were *Callitriche verna*, *Callitriche platycarpa*, *Callitriche autumnalis*, and along the banks *Malva moschata* was pretty abundant. Besides many of the plants common in moist woods, the following were more particularly noticed in Crawley Dean:—*Crepis succisafolia*, *Crepis paludosa*, *Epipactis latifolia*, *Campanula latifolia*, *Vicia sylvatica*, *Anagallis tenella*, *Parnassia palustris*, *Polystichum aculeatum*, *Equisetum Talmateia*, and *Chrysosplenium alternifolium*.

The village of Powburn is in the valley between the porphyritic range of the Cheviots on the west, and the carboniferous strata on the east. As seen from Crawley, these hills are at this season beautiful, many of them, especially those of Fawdon, being of a regular conical form, and covered with a fine green sward, diversified here and there by the purple bloom of the heather. Sandstone shales and impure limestones constitute the stratified rocks. A sandstone on the summit of Glanton Hill furnishes one of the best building-stones in the county, and out of it issues a spring of remarkably soft and pure water, which is conveyed to the village of Glanton for domestic use. As showing the connection between the character of a rock and the quality of the water, it may be noticed that Mr. Collingwood found the water obtained by sinking at a lower level on Glanton Pike, where calcareous rocks occur, to be hard and of an indifferent quality; and from the same calcareous beds a spring issues in Crawley Dean, so saturated with lime, that it incrusts with calcareous matter the mosses and other plants it passes over and forms what is popularly called a "petrifying spring." A good section of the rocks, upwards of 100 feet in thickness, is exposed by a cutting made on the hill-side in

Crawley Dean for the new road. They consist of sandstones and shales interstratified with more than 20 feet of thin beds of impure magnesian limestone, and dip at a high angle to the north-west. After a careful examination, several highly interesting organic remains were discovered in the calcareous beds. Among these are remains of extinct genera of *Ganoid Fish*—an order distinguished by having bright angular scales composed of horny or bony plates covered with enamel: the Sturgeon and the *Lepidosteus* of the American lakes and rivers belong to this order. The specimens found are too fragmentary and detached to admit of specific determination: a long striated tooth, a portion of a very small jaw with ten minute teeth and a scale, could however be recognized as those of a *Holoptychius*, an extinct genus which combined reptilian with ichthyic characters. Several prettily ornamented shining scales also occurred, belonging to *Palæoniscus*, another Ganoid fish. Associated with these remains is a species of *Modiola*, which resembles one occurring in great abundance in the lower shales of the carboniferous formation in Ireland. The Crawley Dean beds belong to the same lower group; they occupy the same position as the strata on the Tweed about Coldstream and on the Whiteadder below Churnside, and are below the Productal limestones and workable coal of Northumberland.

A few Notes on Berwickshire Plants, with Localities for some of the Species. By Mr. JAMES HARDY.

1. *Ranunculus repens*. The latest autumnal flowers are very minute, often not larger than peas.

2. *R. bulbosus*. Since the observation recorded in Dr. Johnston's 'Nat. Hist. of the Eastern Borders,' i. p. 27, of its non-occurrence here, I have observed it growing abundantly in an old grass field behind Cockburnspath; also in a confined space at the foot of the Pease Burn; and there are a few plants at the south end of Penmanshiel Wood.

3. *R. hirsutus*. A single plant in a new grass field at Penmanshiel, introduced with foreign clover seed.

4. *Caltha palustris*. I have met with a proliferous, and also a double state of this plant.

5. *Ulex europæus*. Whins seldom rise in heathy tracts, unless the subsoil has been broken up; but they almost invariably spot the surface, if the ground has formerly been cultivated. The various old roads, by which the moors have been crossed in former times, are either occupied by thickets of furze, or are rapidly being filled up with them.

6. *Rubus plicatus*. Godscroft Woods; Harelawside Wood.

7. *Alchemilla vulgaris*. A dwarf variety, with the leaves and petioles densely pubescent, grows in the gravelly haugh between Godscroft and the Monynuts.

8. *Epilobium virgatum*. This is abundant in some of the peat-pits in Coldingham Moor, and generally over the Lammermuirs.

9. *Galium uliginosum*. Small purplish conical bodies, composed of minute leaves, appear at the ends of some of the shoots in autumn. These are the nestling places of the larvæ and pupæ of *Psylla Galii*.

10. *Bellis perennis*. The var. 2. Withering, Bot. Arrang. iii. p. 733, with the flower globular, herbaceous, and resembling a strawberry, grows in the fields here. It is unaltered under cultivation.

11. *Senecio vulgaris*. Supplementary or aërial rootlets often issue from the stem. They occur also in *S. Jacobæa*, *Achillæa millefolium*, and *Galeopsis Tetrahit*. They are most frequent at the nodes, but the intervals have equally the power of producing them. They are most numerous when the stem is decumbent on the soil, but several of them never enter it. *Digitalis purpurea* and *Cardamine pratensis* in autumn occasionally show rootlets on the stem, but these are connected with leafy buds, originating in the axils of leaves or branches.

12. *Leontodon Taraxacum*. On the 16th of July, I observed that the greater number of the dandelions in a piece of ground that had been rendered very compact by frequent treading on, had most of the flowers united in twos. Some were combined to the very top, and flowered together; another was in seed, while its companion was expanding; a third preserved its unity for only two-thirds of the stalk, and separated at the summit; while a fourth presented a symmetrical stem throughout, without traces of the engrafting process apparent in others. These conjunct heads are not unfrequent in *Apargia autumnalis* and *Centaurea nigra*.

13. *Crepis virens*. On the 22nd of September, I met with a plant among corn, in which the flowers were converted into large green scaly heads. These were circular, and consisted of from 24 to 28 distinct cylindrical herbaceous florets. This state is analogous to that of the daisy already referred to. The (receptacle) involucre was scattered in the form of bracts on the stalk beneath the heads.

14. *Hieracium umbellatum*. Penmanshiel Wood. Both it and *H. sabaudum* are becoming scarce, being destroyed by the colonies of rabbits that of recent years have overrun the woods.

15. *Veronica Chamædrys*. In barren spots, fleshy green nodosities of irregular shapes arise in the substance of the trailing stalks. Several of these retain their connection till spring, when they take root, and are converted into separate plants.

16. *V. Buxbaumii*. This has appeared this season in a new grass field at Penmanshiel, occupying about thirty square feet, and nearly confined to one spot.

17. *Teucrium Scorodonia*. There is a variety with the leaves crispate, and more than usually wrinkled.

18. *Calamintha Acinos*. A few specimens have appeared this season in a field at Penmanshiel.

19. *Galeopsis Tetrahit*. There is a diseased condition of this plant not unfrequent, which I examined this autumn. The stem twists itself into a curve, and the florets sit close together, are pale-coloured, and little developed. On opening the part of the stem producing the florets, the interior is found to be of a loose spongy texture, of a yellowish hue, and verging to a state of decay. Among the vegetable matter I observed masses of a white substance resembling hairs, which at length by their movements discovered themselves to be vibriones. The species is very similar to that occurring in the diseased stems of the *Trifolium pratense* first observed by Mr. Murcott; and it may be remarked, that the structure of the diseased portions of the hemp-nettle and the red clover also exhibit a mutual likeness. I could detect no vibriones in other parts of the stem, in which the green matter under the bark was concreted into granules, a circumstance that also takes place in the small purplish specks formed upon the foliage of some grasses by *Vibrio Graminis*. I have not paid sufficient attention to the subject to be enabled to state whether the vibriones are the cause of the malady in the *Trifolium* and *Galeopsis*; but that they are not always mere agents of decay, like the *Rhabdites tuberculorum* of putrefying potatoes and turnips, appears from *V. Tritici* and *V. Graminis* originating diseases in structures otherwise sound.

20. *Scutellaria galericulata*. The locality indicated in 'Nat. Hist. East. Bord.' i. p. 164, has been destroyed by the railway operations; but the plant occurs by the side of the Pease Burn, a short way below the forester's house. *Solanum Dulcamara* also still survives there.

21. *Trientalis europæa*. This still occurs sparingly on Penmanshiel Moor; and is scattered over the moor between Buskin Burn and Laverock Law. It also grows at the southern end of the fir plantation at Blackburn. The bog wherein it grew near Blackburn Wood is now cultivated.

22. *Pinus sylvestris*. Hitherto there has been no record of pine-trees being imbedded in any of the Berwickshire peat-

mosses. I find, after examining several of the cuttings made for peats in this vicinity, that they occur in Dulaw Moss. They are to be seen on the east side of the moss, where the peat is at present obtained. I traced out the remains of six or seven stumps still rooted in the moss; having been left behind, after the peat had been dug from about them. Another, still in the moss, lies beneath three feet of peat. They present the shattered appearance of trees that have been fractured by a gale. One of the trees, however, thirteen yards long, lies at present exposed, with the root still attached to it. Some of the external wood is quite sound, and of a reddish tint, and burns with a clear flame and a resinous odour. The bark still adheres to the base of the stumps, and layers of resin in an unaltered state lie between the separate flakes. The diameter of the stumps is from $1\frac{1}{2}$ to $2\frac{1}{2}$ feet, and the height of one is 3 feet. I picked up several cones that lay scattered about, and along with them a hazel-nut. Immense quantities of the remains of oak and birch trees, in an extremely decayed state, lie huddled together in the moss where these pines occur, and constitute the larger portion of the peat. A very straight oak had been extracted, 9 yards long and 2 feet in diameter. Although huge oaks now and then occur, birch is certainly the predominant tree in the Lammermuir peat-mosses; and young trees spring up there still. Hazel also is pretty generally distributed.

23. *Scirpus fluitans*. Dulaw Moss.

24. *S. caricinus*. Sides of the Whitcadder, near The Retreat.

25. *Triticum repens*. I have met with an instance where the root has penetrated through a portion of a sound potato, having entered at one of the "eyes." When I obtained it, it exactly fitted the perforation. The Quicken is sometimes called "appointed grass," from the single awl-like leaflet it sends up at its first appearance above ground in spring.

26. *Polypodium Dryopteris*. Banks of Monynut Water, opposite Godscroft.

27. *Pteris aquilina*. The scape sometimes bears hard woody prominences, analogous perhaps to spines. Those nearest the root are long, slightly recurved, and brown at the apex.

28. *Didymodon flexicaulis*. Abundant on Greenside Hill, and near the Blakelaws, in such barren spots in bogs as *Hypnum filicinum*, *H. commutatum*, *Bryum pseudo-triquetrum*, and *Lycopodium Selago* grow in.

29. *Gymnostomum fasciculare*. Frequent in the upper part of Howpark dean, by the side of the burn, fruiting in August.

30. *Marchantia conica*. Common in all the deans in Penmanshiel Wood; also in Howpark dean, and on the Monynut Water.

31. *M. hemisphærica*. On rocks bedewed by the spray of the burns; Howpark dean; Monynut Water; side of the Whiteadder, near The Retreat. It also occurs in Penmanshiel Moss, on the sides of a few of the peat pits, near their base; and also amongst the mud, where the water is shallow. This and No. 28 are additions to the Flora.

32. *Endocarpus miniatum*. On rocks in the upper part of Howpark dean.

The Algæ of the Eastern Borders.

1. *Polysiphonia parasitica*. Berwick Bay, in the Narrow-Lane, and on rocks in front of the Singing-Coves, Mrs. Gatty.

2. *Ceramium botryocarpum*. Berwick Bay, Mrs. Gatty.

3. *Ectocarpus tomentosus*. Berwick Bay, in front of the Singing-Coves, Mrs. Gatty.

4. *Ectocarpus granulatus*. Berwick Bay, Mrs. Gatty.

5. *Ectocarpus siliculosus*. Berwick Bay, Mrs. Gatty.

6. *Callithamnion Hookeri*. Berwick Bay, Mrs. Gatty.

7. *Callithamnion Brodiaei*. Berwick Bay, Mrs. Gatty.

8. *Rhipidophora paradoxa*. Parasitical on *Ectocarpus granulatus*, Mrs. Gatty.

9. *Laminaria fascia*. In front of the Coves, Holy Island, Dr. Johnston.

10. *Hypnea purpurascens*. Abundant about the Coves in Berwick Bay, Mrs. Gatty.

11. *Cladostephus verticillatus*. Near the Coves in Holy Island, Dr. Johnston.

12. *Sphacellaria radicans*. Near the Coves, Berwick Bay, Mrs. Gatty. I find that it is common both on the Berwickshire and North Durham coasts, G. J.

13. *Ceramium acanthonotum*. Common on our shore, growing on the beds of small mussels and acorn-shells, G. J.

14. *Laurencia cæspitosa*. On rocks south of Scremerston-mill; and very fine in front of the Coves in Holy Island, Dr. Johnston.

15. *Melobesia pustulata*. Holy Island, Dr. Johnston.

16. *Mesogloia virescens*. Common on rocks about the Coves in Berwick Bay, Mrs. Gatty; and in Holy Island, Dr. Johnston.

17. *Ulva linza*. In the Singing-Cove and the adjacent coves, Mrs. Gatty; and in pools among the rocks at Hudshead, Dr. Johnston.

PROCEEDINGS

OF THE

BERWICKSHIRE NATURALISTS' CLUB.

Anniversary Address, delivered to the Berwickshire Naturalists' Club at Berwick, January 30th, 1856. By ROBERT EMBLETON, Surgeon, President.

IF, Gentlemen, on the two previous occasions, when I was, by your kindness, elected to discharge the duties of your President, I felt deeply how inadequate I was to do so in a manner commensurate with the proud position in which I was placed, how much more keenly do I feel my unworthiness on the present occasion, when I am called upon to succeed him who was the founder, the life and soul of our Club! The reasons you assigned for the honour you then conferred upon me were such that any one might be proud of, namely, that I was one of his oldest and most intimate friends; but these very reasons rendered the task imposed upon me more delicate and more difficult. For, in the first place, the little knowledge I possess of Natural History is entirely owing to his kind superintendence, cheering me on by his example and precept, and, in the hour of doubt or difficulty, clearing my path from the obstructions which surrounded it. How presumptuous, then, must it be thought by all that I should attempt to give an opinion of his merits as a

naturalist or a physician to whom I owe so much ! and how can it be expected that I should delineate his character as a man, except according to my own feelings, after an uninterrupted friendship of more than twenty-five years ? As, however, I perfectly coincide with you, that there is no such fitting place to record his many contributions to science as in the Transactions of our own Club, so is there no place more suitable for a sketch of his life and character. Imperfect indeed it must necessarily be. I have trusted little to my own opinions or feelings, but have contented myself with using what has already been recorded of him by others, who were much more competent than myself to form a correct opinion of his position in every relationship of life.

George Johnston was born on the 20th of July, 1797, at Simprin, in Berwickshire. Soon after his birth the family removed to Ilderton, in Northumberland, and there he spent his earliest years. He went to school for a short time at Kelso, and afterwards to the Berwick Grammar School. From thence he proceeded to the University of Edinburgh, residing in the family of the late Rev. Dr. M'Crie, the author of the 'Life of John Knox.' On his selecting medicine as his future profession, he was apprenticed to Dr. Abercrombie, under whom he prosecuted his professional studies, as well as all the branches connected with it, with a steadiness and zeal which ensured his future eminence. During these years he joined the Royal Medical Society, and attended the usual course of lectures ; but whatever benefit he might have derived from them, he has frequently told me, he attributed his knowledge to the care and instructions of his friend and master. In 1817 he obtained the diploma of the College of Surgeons. After this he then proceeded to London, where he studied under Joshua Brooks, and soon after established himself in practice at Belford in Northumberland. Here however he remained only a short time, for in 1818 he removed to Berwick-on-Tweed, where he continued to reside until his death. In 1819 he returned for a short time to Edinburgh, for the purpose of obtaining his degree of M.D., his thesis being 'De Hydroke,' and in 1824 he became a Fellow of the College of Surgeons, his inaugural dissertation being on the subject of cancer.

Although his practice in Berwick, even at the commencement of

his professional life, was much greater than generally falls to the lot of the young practitioner in medicine, he nevertheless found many hours unoccupied; but to him leisure did not create idleness: he at once began to investigate the natural history of the neighbourhood; and how sedulously and actively he had employed his time became apparent when, in 1829, he published the first volume of the '*Flora of Berwick*,' and two years afterwards the second, containing the *Cryptogamia*. During the same period he had been quietly turning his attention to the anatomy and habits of the invertebrate animals found upon the coast, and the fruits of his discoveries appeared at various times in the then popular '*Magazine of Natural History*,' conducted by the late Mr. Loudon, his clear and correct descriptions being at the same time illustrated by the faithful pencil of Mrs. Johnston. But no department of natural history was overlooked by him; he carefully noted what he thought worth recording, in whatever branch it might occur, thereby being afterwards able to give satisfactory answers to the numerous queries that were asked of him, when his name became so intimately associated with European naturalists. In the first volume of the '*Transactions of the Newcastle-upon-Tyne Natural History Society*,' appeared what may be called the first edition of his work on the '*British Zoophytes**,' a class, since the days of Ellis in 1755, almost entirely overlooked. This was soon after followed, in 1838, by his '*History of British Zoophytes*,' the work which he has made almost peculiarly his own. The beauty and fidelity of the descriptions, enhanced as they were by the faithful figures that illustrated them, naturally turned the attention of many who had opportunities to the investigation of what they had previously looked upon as ocean's flowers, but now found to be living creatures. A second enlarged and much improved edition appeared in 1847, and it is now recognized as the text-book on the subject throughout the world. Between the editions of 1838 and 1847, his active mind found no rest. The unattractive sponges and lithophytes (for to him nothing in nature was mean, but he saw that in every object some beautiful provision of nature existed) excited his attention and investigation, and the result was known by the appearance of '*The History of the*

* Which he named a '*Catalogue of the Recent Zoophytes found on the coast of North Durham*.'

British Sponges and Lithophytes,' a work which may be called *almost unique* in this department of British Zoology. In 1850 appeared, under a collected form, many of his earlier papers, communicated to 'Loudon's Magazine,' on the Mollusca, under the title of an 'Introduction to Conchology,' a work which was said by his talented and lamented friend, the late Professor Edward Forbes, to be worthy of equal praise as the celebrated Introduction of Kirby and Spence to Entomology. How little was it expected that two such kindred spirits should so soon join each other in another and a better world? The last work published during his life was the first volume of 'The Natural History of the Eastern Borders,' comprising the botanical portion, a work which he looked upon with what I may term fatherly affection, and in which there is shown a more correct idea of the mind of the author than in any of his other works. At the time of his decease, he had just completed his 'Catalogue of the British Worms,' which, I am happy to hear from our member Dr. Wm. Beard of the British Museum, will soon be in our hands, and that it will bear out fully the character that was bestowed upon the previous works on the Invertebrata. His contributions to the various periodicals of the day will be found in the list I have appended to this address. His name as a naturalist was known all over the world, where natural history was cultivated, and he was elected member of many societies in Great Britain and Ireland, and the University of Aberdeen conferred upon him the honorary degree of LL.D., whilst at the same time his correspondence and intercourse with foreign naturalists became widely extended. Under these circumstances he laid the foundation of the Ray Society, which has given to the scientific world works which would have been otherwise inaccessible. Thus far I have sketched, how imperfectly you must all equally feel with myself, his public career as a naturalist, and I now come to that point when, if I may use the term, "*we claim him as our own.*" It was during the year 1831 that he first mentioned to me the idea of the formation of the Berwickshire Naturalists' Club. I was but too happy to coincide with his views; and having intimated to a few others the design that had been formed, our first meeting took place at "*Tommy Grant's,*" and, often as we have visited the spot (and a favourite one it was to him), he would always recall the merry meeting, and the happy inauguration of our

Club, and nought of sadness ever seemed to cloud his benign countenance except when he referred to the loss of some one who had been then present. Under his fostering care, our Club has not only risen to a proud position in regard to the natural history societies which were then in existence, but I believe it has done more than any other for the investigation and illustration of our native Flora and Fauna, by being the parent of so many similar clubs, which have been formed in various parts of the kingdom.

In his medical capacity he had a happy facility in the discrimination of diseases, a consequence naturally flowing from the manner in which he had taken advantage of the opportunities that were so extensively opened to him during his abode in Edinburgh under Dr. Abercrombie. The knowledge thus acquired was never forgotten; and by his reading, correspondence, and study, he was perfectly acquainted with the advancement of the day in every department of his profession. In his practice he was simple to a degree; and often has he said to me, that he could never understand how medical men threw remedies to the dogs, which they had hitherto placed such confidence in, merely because some remedy had become popular by being introduced by some fashionable practitioner. His idea of practice was, to watch nature narrowly, to interfere as little as possible; but, when necessary, to act boldly and promptly. As a consulting physician, he was everything that both patient and the attendant could wish for. If he found that his views coincided with his brother practitioner, he at once told the patient so; and, to place full confidence in the usual attendant, he never prescribed another remedy to effect the same purpose, merely for the sake of doing something for his fee, which is one of the greatest blots upon the character of the medical profession, and which, I am sorry to say, I know from experience to be far too common. If he thought a different treatment necessary, he took care neither to alarm the patient nor offend the feelings of the attendant; and so high a sense of honour had he in his intercourse with his fellow-practitioners, that nothing would induce him to repeat his visit, unless he thought the urgency of the case demanded it. In this manner he established himself as a friend with every one. To him, in the discharge of his duties, no station in life presented any distinction; and, by his death, the poor have lost

one who always, by his kindness of heart, cheered their bed of sickness, if he could not alleviate their sufferings.

In the discharge of his duties as a public man, he was "sans peur et sans reproche." Uncompromising in whatever was mean or disingenuous, he courted no clap-trap popularity, nor feared any obloquy that might be cast upon him, conscious of the integrity by which his actions were governed. Thrice he filled the highest municipal office; and so efficiently did he perform the duties, and carry out the hospitalities connected with it, that his grateful townsmen presented him with a handsome testimonial in commemoration of the manner in which he discharged his duties during the meeting of the Highland Society's Show at Berwick in 1841.

In regard to his merits as a naturalist, I would fain be silent; his works speak for themselves. But great as his fame is, and widely known as his name is, I think both would have been much more so had his works been of a more general nature and less local. As a botanist, his works are purely local; but the happy mixture of scientific with popular knowledge has led many to cultivate the science of botany, by showing them that there is something more in its study than a few hard names and dry descriptions; and his last published work, 'The Flora of the Eastern Borders,' has been well designated as one of the most interesting botanical works that has ever been written. As a zoologist, especially a British naturalist, he has had no equal in the Invertebrate kingdom since the days of Montagu. His descriptions are excellent, and possess a charm about them, which render them readable to all, without losing their scientific value. His work on conchology is the most general of all his works, and contains an immense mass of materials; but this work, as a matter of course, is less original than any of his others, being necessarily in great part a compilation; but the attractive style in which it is written cannot fail to arrest the attention of all who read it, and is well deserving the honour it has received of being translated into German; and I believe it is acknowledged by all *practical* naturalists, that he has left few behind him who are his equals in the study and knowledge of the habits of the Invertebrata of Great Britain.

In his character as a man, every thing about him was clear and genuine—it was easily understood. Frankness, simplicity,

and earnestness were the characteristics of his private and public life. His style of thought, feeling, and expression was fresh and buoyant as the "breath of morning." He possessed the happy art of using his mind—a certain continual power of seizing the useful of all that he knew, and exhibiting it, in a clear and forcible manner; so that knowledge in him was true, evident, and actual wisdom. His mind was full of imagery, and therefore highly poetical. He possessed peculiar powers of wit and humour, and the heartiest merriment was often enjoyed in his company; and it had this great advantage, that being free from every mixture of vice or impiety, it was salutary to those who enjoyed it. His acute observation, with something of a benevolent interest in what was minute and homely, and a sense of the beautiful and humorous, akin to that of Burns or of Bewick, with a refinement that belonged to neither, made him almost unrivalled in description and anecdote; and, besides, there was an overflowing cordial kindness, which raised our delight in his society into fondness for the man. There was, too, an inner, tenderer society, which I have often had the happiness to witness, bound together entirely by the chains of love. No trouble, if any occurred, was ever allowed to rankle in secret, but was at once confided to his family, and borne bravely in common. Gloom found no resting-place at his fireside, but freedom, mirth, and playful banter. Yet that "perfect love," which had nothing to fear, deepened the sense of deference; there was a union of sentiment between father and family which required no authority to enforce it,—it was a union more from sympathy than obedience. Yet, with all these winning properties, his disposition was not of that mawkish temperament which never offends, or takes offence at anything, and is often mere indolence, or a selfish "liking to be liked." He hated no man; but he thoroughly hated meanness, pretence, jobbery, and shams of every kind. On every occasion, light or serious, it was the same. He maintained, that the only cure for quackery was to teach the public the folly of it; and that there was more of quackery in the means of notoriety used by some fashionable practitioners, than in the vendors of patent medicines, who paid for their advertisements.

For the last two years of his life he became subject to symptoms which were very obscure as to their origin, and which

often, he told me, completely took away from him any desire at times for his favourite studies, or even to attend to his professional duties. As this state did not, however, continue long, and is a frequent attendant on mere functional derangement of the stomach, it gave rise to no apprehension of any serious mischief going on. The last walk I believe he ever took in the prosecution of his favourite pursuit, was to search for some worms on the shore, to the north of Berwick. I had the melancholy pleasure to accompany him. I noticed little or no change in the conversation that usually took place between us; but, as soon as we had accomplished the object we had in view, he seemed at once to become exhausted, and anxious to return home. Soon after this he went to Edinburgh, and from thence to the Bridge of Allan, where it was hoped the change would soon restore him to his former self,—so obscure and so little alarming did his symptoms appear. I visited him at the Bridge of Allan, and having heard on my way that he was much better, I looked forward to spend a day or two in the full enjoyment of exploring a district that was new to us both. I shall not attempt to describe the shock I received on entering his room. I saw at one glance the utter hopelessness of his case, and the veil that had hitherto so completely overshadowed his disease was at once raised; and the symptoms, which had been so long doubtful, were made apparent, and at once accounted for. This was on the 9th of July. I advised his immediate return, which was strengthened on the following day by his friend Dr. Douglas Maclagan. He reached home on the 11th. Day after day his disease developed itself more; his once lively and fertile imagination became a blank; and, on the morning of the 30th of July, he quietly breathed his last, in the 58th year of his age.

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Since the death of its founder, the Club has also to deplore the deaths of the Rev. Dr. Gilly, Vicar of Norham, and the Rev. Thomas Riddell, Vicar of Masham. Dr. Gilly was born at Hawkedon Hall, in Suffolk, in 1789. He received his education at Christ's Hospital, and, in 1809, he received an Exhibition from the Hospital to Caius College, Cambridge; from thence he removed to Catherine Hall, but his health was so delicate, as to prevent him from that study which is requisite for taking university honours. His name, however, was soon brought into

notice by the publication of his journey to the Waldenses, which took place in 1823. The late Bishop Barrington was so highly pleased with it, that he at once invited him into the diocese, and presented him to a Stall in Durham Cathedral. In 1831 he became Vicar of Norham. To the end of his life he continued to take the warmest interest in the Waldenses, and he had the happiness to live long enough to see them enjoy civil and religious liberty, after 800 years' persecution. In the discharge of his duties as a parish priest he was incessant; and although a warm supporter of the Church of England, his mind was perfectly free from sectarian bigotry, and he ranked amongst his friends good men of all denominations. The restoration which he effected in the fine old Norman Church at Norham will be a lasting monument of his fine taste. As an author, 'Our Protestant Forefathers,' his 'Life of Felix Neff, Pastor in the High Alps,' 'Vigilantius and his Times,' have made him justly celebrated; whilst his Romaunt version of the Gospel of St. John has established his fame as a scholar; and to him the working classes are indebted for his 'Plea for the Peasantry of the Border.' He died at Norham on the 10th of September, 1855, in the 67th year of his age. He discharged the duties of President of the Club in 1851; and his noble countenance, so full of benevolence and generosity, will not soon be forgotten by those who had the pleasure of his acquaintance.

The Rev. Thomas Riddell, Fellow of Trinity College, Cambridge, and Vicar of Masham, Yorkshire, was born at Berwick, in the month of January 1803, and died at Keswick, Cumberland, from a fit of apoplexy, on the 30th of September, 1855. He was elected President in 1839, and contributed to our Transactions a paper "On the Metamorphosis of the *Balanus punctatus* of Montagu." As a scholar he stood deservedly high, and our lamented President I know was always in the habit of asking his assistance, when in doubt upon any classical point. He had, for a little release from his duties as a minister, taken a tour through Cumberland, when he was suddenly seized at Keswick with symptoms of apoplexy, from which he never rallied. In his death the poor lost a kind and considerate friend; and in the discharge of his duties he endeavoured, by his example and precept, to bear witness that he believed in the doctrines he taught.

Mournful as is the retrospect of the past year, let us not "sorrow as men without hope;" if the bodily presence of those who were the life and soul of our Club are removed from us, may we not, in all our future meetings, still recall them to memory, and fancy that, though invisible to us, they may still hover around us, and participate, in a more exalted form, the pleasures of which we partake? May the recollection of the example they have left behind them stimulate each member to increased exertion, so that the Club may not only maintain the position it holds, but that it may go on gathering strength and reputation from year to year. It is the highest honour that we can pay to the memory of our chief, to preserve it in the position in which he bequeathed it to us. The study of Nature is inexhaustible, and it never, when rightly pursued, loses its relish; and even when life itself is almost gone, memory

"Will play with flowers,
And babble o' green fields."

If an admiration of the works of God raises the mind and character above the cares and troubles of this world, may we not hope that such a temper of mind may be far more highly gratified and exalted in a future state? Such a hope is in harmony with all our best feelings, and may surely be indulged without mischief or blame, if it does not interfere with that absolute reference of everything connected with futurity to the wisdom and goodness of our Creator, which ought to be not only our duty, but delight. Under the influence of this disposition, every enjoyment and every hope is enhanced; and He surely cannot be offended by our associating the admiration of His works with any ideas or hopes concerning the happiness in store for us hereafter.

The October Meeting was held at Berwick on the 25th, and the only Members present were Dr. Johnston, P. J. Selby, Esq., Dr. Clarke, and Mr. Tate. The accounts of the Secretary were passed, and the subscription for the current year was fixed at 5s. 6d. The Minutes of the Bamburgh Meeting were read, and the following places fixed upon for the meetings of the ensuing summer :—

May 2, Wednesday	.	.	Chirnside.
June 3,	„	.	Bamburgh.
July 3,	„	.	Ayton.
Aug. 2,	„	.	Dunse.
Sept. 2,	„	.	Belford.

The Rev. Hans Hamilton, Vicar of Berwick, and Mr. William Dode were admitted Members.

The first Meeting for the present year was held at Chirnside on the 9th of May. The Members present were Dr. Johnston (the President); Rev. Mr. Hamilton, Vicar of Berwick; Dr. Wilson of Berwick; Dr. Stuart; Mr. Dunlop; Mr. W. Dunlop, and Mr. Dickson of Alnwick. We met at breakfast, after which the President held a conversation on learned points of botanical lore with Dr. Stuart, who exhibited a beautiful specimen of the *Diehytra spectabilis*, and it was agreed by all, from its hardiness, its elegance of shape, and profusion and beauty of its flowers, to be one of the best plants for the cottage window. The party separated till four o'clock. One section sought the Whittadder for fishing, and Dr. Johnston, Dr. Stuart, and Mr. Dickson first proceeded to the church to examine the Norman doorway, which, when the church was restored, by some fortunate circumstance, had been retained. We then sauntered leisurely along the road, and through the park at the back of Nunland's house to the Paper Mills, where we were shown over the whole of the works by the intelligent manager. They are conducted upon an extensive scale, and provided with the most modern and best machinery. It would be folly to describe here the well-known process; but nothing proves the ingenuity of man more than to follow the dirty rags from their filthy state throughout the cleansing, the cutting, the pulp, and the delicate formation of the filmy fibre into paper fit for immediate use. The mills are on the River Whittadder, in a picturesque situation. A branch from the North British Railway enters the yard. The village and people all partake of the air of comfort and cleanliness pervading the works, highly creditable to the establishment. We then recrossed the bridge, and proceeded down the north side of the river, listening as we went along to the entertaining stories and remarks of our late respected Pre-

sident—and no one could enliven the way more pleasantly. At times Dr. Stuart and he entered into minute points of botanical interest, and at other times he discoursed on common plants, and on the geological character of the district, as developed in the high scars of the opposite banks of the river, which show each layer of rock, shale, and other matter—now horizontal and now depressed. Still we sauntered onwards, until we came to the grounds of Nunlands, a seat of a branch of the ancient family of Hume, where David, the historian, spent much of his time, and wrote many of his works. The house is modern, and stands on the top of the bank, which slopes to the river, amidst woods and waters—

“inter sylvas et flumina habitans.”

Half-way down the grassy slope are the Nine Wells, which form at once a little cool, refreshing brook, lost almost as soon as born in the waters of the stream below, which sweeps the northern bank of this most lovely abode. From thence we continued our walk quietly through woody brake and under the knarled oak until we came out on the road, which led us to our place of meeting a little before the appointed time, stopping ever and anon to hear the sequel of some interesting story or anecdote which the Doctor told so well.

We had just time before dinner to examine Dr. Stuart's garden, and to admire his select flowers,—many preparing for the forthcoming show at Berwick, where they carried off several prizes.

After dinner the Minutes of the previous Meeting were read, and Thomas Sopwith, Esq., was admitted a Member. Dr. Johnston exhibited specimens of *Phronima sedentaria* from Shetland, and read a note from Mr. Hardy on diseases of plants, connected with mites, and a short one from Mr. Selby on the lateness of the spring.

The second Meeting was held at Bamburgh, on the 20th of June. The members who attended were Dr. Johnston, Rev. H. Parker, Mr. Selby, Mr. Collingwood, Rev. G. Rooke, Mr. Tate, Rev. W. Darnell, Mr. G. R. Tate, Mr. Wm. Boyd, Rev. F. R. Simpson, Mr. Charles Ree, Rev. G. H. Hamilton, and Rev. Edw. Sandys Lumsden. This gentleman was proposed for the membership by the Rev. G. H. Hamilton, and the nomination being seconded by the Rev. H. Parker, it was placed on the Minutes accordingly. Mr. Huggup of Shoreston was similarly proposed and seconded.

There was no special object before the Club, so that the members strolled each his several way, following out his individual bent until the hour reunited us at dinner. This done,

the minutes were read, and the Rev. Mr. Hamilton was admitted a member. Some general conversation ensued, when the meeting dispersed.

To William Dickson, Esq., I am indebted for the following notice:—

On Wednesday, the 18th of July, the Meeting was at Ayton. The early morning was not propitious. I was the only member present at the inn; but two or three came straggling there, and finding no meeting, they left. I was not aware that the cause of this thin attendance was the illness of Dr. Johnston. I went on to Coldingham Abbey, to view the restorations which are rapidly progressing. This Abbey belongs to the Crown, and I understand the Commissioners of Woods and Forests give £800, and the heritors of the parish provide the remainder of the funds. It is quite out of the question to reinstate the Abbey as it was, the only part left being the chancel. It a fine specimen of the early English style. The dark red sandstone and the white, with all its various intermediate mixtures and tints, give a richness to the work. The west end is built up, and corresponds with the original east end of the building. The north wall and the interior arches will be restored to their original beauty; but the south wall will not: it will be pierced with a few lancet windows, and there will be a porch at the south door, which will be the only entrance to the church. In excavating a few yards from the west end, under where the centre tower was, the base of one of the clustered pillars had been exposed. What is still more interesting to the antiquarian architect, this ancient western column, north side wall, and circular apse of the old Nunnery has been exposed to view,—the building which preceded the present fabric. The mason work is rude, having a foot of plaster outside. The columns are small, and the building narrow, and nearly the whole length of the present church. It is probable many more interesting discoveries will be made.

On account of the melancholy death of Dr. Johnston, no Meeting of the Club took place in August.

The members present on the 12th of September, at Belford, were P. J. Selby, Esq., Rev. J. D. Clark, Wm. Darnell, W. P. Rigg, G. Walker, Mr. Geo. Tate, Messrs. John and Wm. Boyd, Dr. Clarke, Dr. Douglas, Mr. Embleton, and Wm. King, Esq., as a visitor. The Rev. Charles Thorpe, Vicar of Ellingham, was proposed as a member by the Rev. Geo. Walker, and seconded by the Rev. Wm. Darnell.

The only business transacted at the Meeting was the appointment of Mr. Embleton as Secretary and President until the next Meeting, which was to be held some time in January.

Additional Habitats for some of the Rarer Plants found in Berwickshire. By J. HARDY, Esq., Penmanshiel.

Vaccinium oxycoccus. Abundant in the Drone and Long Mosses on Coldingham Moor. It is called the *Moss-brumme* and *Moorfowl-berries*.

Ranunculus hirsutus. Not unfrequent in a field near Dulan. A few plants have occurred in grass-fields at Penmanshiel.

Thlapsi arvense. Abundant in a field on the north side of the Dean, east from St. Helen's Chapel.

Sagina apetala. In the Slate Quarry at Old Cambus West Mains.

Crepis succisæfolia. In the eastern part of Penmanshiel Wood.

Hippophae rhamnoides (page 178). I have ascertained that this shrub was planted at no very remote period. The locality specified is in East Lothian.

Orchis latifolia. A rose-coloured variety, that grows in a very marshy bog on our moor, has this season had its flowers changed to a white, or the palest pink hue. A number of sheep-drains had been cut in the bog, early in the season, so as to lay the ground comparatively dry.

Phleum pratense. The bulbous-rooted variety is frequent in the Dean, at St. Helen's Chapel.

In a paper on "Excrescences, &c. formed by Mites," which was intended for the Club's Transactions of the present year, if I recollect aright, *Geranium rotundifolium* was inadvertently written instead of *G. molle*. This is my impression; but it may be incorrect after all. The paper will perhaps come in your way among the Club's documents.

If ever I be able to visit Berwick, I shall not fail to call and pay my respects to you and Mrs. Maclagan. With best wishes, believe me,

My dear Sir,

Faithfully yours,

Dr. P. W. Maclagan,
&c. &c.

JAMES HARDY.

1. The Flora of Berwick-upon-Tweed. Vol. i., 1829. Vol. ii., 1831. 12mo, Berwick.
2. On the Genus *Caligus* of Leach. Edinburgh Philosophical Journal, x. p. 292. Féruss. Bull. 1828, xiii. p. 160. Isis, 1832, vi. p. 603.
3. Natural History of Molluscous Animals. Magazine of Natural History. Series I. ii. pp. 22, 148; iii. pp. 39, 249, 335, 525; iv. pp. 351, 523; v. pp. 31, 611; vi. p. 235; vii. pp. 106, 218, 408; viii. p. 71.
4. On a Whale, stranded near Berwick-upon-Tweed. Transactions of Natural History Society, Newcastle, i. p. 6.
5. A Descriptive Catalogue of the recent Zoophytes found on the Coast of North Durham. Transactions of Natural History Society, Newcastle, ii. p. 240.
6. Illustrations in British Zoology. Magazine of Natural History. Series I. v. pp. 43, 163, 344, 428, 520, 631; vi. pp. 40, 123, 232, 320, 405, 497; vii. pp. 13, 126, 230, 348, 490, 584, 638; viii. pp. 59, 81, 179, 202, 258, 341, 376, 465, 494, 565, 594, 668; ix. pp. 14, 79, 144, 229, 298, 353, 472. Wieg. Arch. 1835, i. p. 310.
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PROCEEDINGS
OF THE
BERWICKSHIRE NATURALISTS' CLUB.

Address, delivered to the Berwickshire Naturalists' Club at Belford, October 29th, 1856. By ROBERT EMBLETON, Surgeon, President.

GENTLEMEN,

I DID not expect that I should have been called upon to address you a second time in one year, as I considered my reappointment to the high honour of President merely as a step in some degree necessary for the arrangement of the affairs of the Club in connexion with the office of your Secretary, which I had undertaken to perform. As, however, according to our usual custom, it was necessary to take some notice of our proceedings during the year, I considered myself bound not to depart from it. And in the first place I hope I may be allowed to congratulate the Members, that during the year we have not had again to mourn the loss of any one, but that several names have been added to our list, and that the affairs of the Club are in a most satisfactory position.

The Anniversary Meeting was held at Berwick on the 30th of January, when I read to you the address which I had been requested to prepare upon the character of our deeply-lamented

President and Founder ; and feeble and imperfect as the sketch was, I cannot but feel a little pride it was not only acceptable to you, but, from the letters I have received from many of his most intimate friends, that it met with their approbation. The Members present were, Revds. J. Fyler, G. H. Hamilton, George Walker, William Darnell, and J. D. Clark ; Mr. Selby, Mr. Home, Dr. Clark, Major Elliott, Mr. Huggup, Mr. Stevenson, and Mr. Embleton. The Rev. Charles Thorp of Ellingham was elected a Member ; and Mr. Embleton was reappointed President and Secretary. The subscription for the year was fixed at 6s., and the following places for the Meetings of the Club :—

Coldstream	May 21.
Coldingham	June 25.
Dunse	July 30.
Alnwick	Sept. 24.

The Members who attended the Meeting at Coldstream were, Rev. J. D. Clark, Rev. John Baird, Mr. Home, Mr. Tate, Major Elliott, Mr. Melrose, Mr. Rea, Messrs. John and Wm. Boyd. Mr. Selby of Earl, and the Rev. T. S. Goldie, were present as visitors. After breakfast the party proceeded to explore the banks of the Leet, whose course they followed to the grounds of the Earl of Home at the Hirsell, through which they were conducted by Mr. Smith, the gardener. Many of our well-known plants were found in great profusion, but none demanding any especial notice, except *Polemonium caruleum*, *Tulipa sylvestris*, *Eranthus hyemalis*, and *Lonicera Caprifolium*, plants which are now unanimously accepted by botanists as aliens to the soil. Returning by the banks of the Tweed, *Lactuca virosa* and *Dipsacus sylvestris* were found plentifully. No insects were captured worthy of notice. The geological character of the district was carefully examined by our learned friend Mr. Tate, and the notes he has furnished me with state, that the banks of the Leet consist of *grey* and *greenish arenaceous shales*, interstratified with *slaty sandstones*, and thin beds of *impure buff magnesian limestone*. Some sandstones appear opposite the Hirsell, containing a notable portion of calcareous matter. In some of the shales are obscure remains of plants, and in others are found considerable numbers of *Modiola angustata* (Portlock) along with *Cypris Scoto-Burdigalensis*.

The following section may be taken as characteristic of the whole :—

	feet.	in.
Slaty sandstone (lowest bed)	3	0
Grey shale	4	0
Magnesian limestone	1	0
Dark grey shale with plants	20	0
Lilac argillaceous sandstone, with singular casts of vermiform bodies	5	6
Magnesian limestone	1	6
Grey shale with <i>Modiola</i> and <i>Cypris</i>	2	6
Very impure limestone	0	9
Grey shale	1	6

These beds dip E.S.E. about 10° , and form part of an interesting series which is well seen from Carham to Norham, and on the banks of the Blackadder below Chirnside. Below Coldstream the sandstones abound in *Lepidodendra*, and fine specimens of *Stigmaria ficoides*, with the rootlets attached; and near this locality, the remarkable remains of coniferous trees, with the internal structure preserved, were first observed by Witham; and it is important to notice that along with these trees Mr. Tate has found *Orthocerata*, *Pleurotomaria*, and *Modiolæ*, marine shells, which prove that the coniferous trees had been carried down into an estuary of the sea, and entombed and fossilized among marine exuviae. These beds form the lowest portion of the Carboniferous formation lying below the Productal and Encrinal Mountain Limestone of Northumberland, and might properly be designated as the *Tuedian group*. They are distinguished by the peculiarity of the shales, by the thin beds of magnesian limestone, by the absence of Brachiopods, and by the presence of *Modiolæ*, *Entomostraca*, and *Fish-remains*. Specimens of these fossils were exhibited by Mr. Tate. The Rev. J. Baird also exhibited specimens of the curious form of *Ranunculus auricomus*, first noticed by him eight years ago, and during which period it has been sought for in vain until the present year.—The Rev. T. S. Goldie was proposed as a Member by Mr. Melrose, and seconded by Mr. Rea. The day was extremely beautiful, and spent in the usual enjoyments of kindly intercourse and feeling.

The next Meeting was held at Coldingham, on the 25th of June, and was attended by Dr. Hood, Dr. Stuart, Mr. Huggup,

Mr. Stevenson, and Mr. Embleton. After breakfast the Members took the road leading to St. Abb's Head, which they reached about one o'clock; the day was all that could be wished for, and the pleasing change which had taken place in the weather enhanced the pleasures of the walk. Our intention was to have visited the Caves in a boat; but a heavy swell from a north-east wind on the previous day rendered it extremely hazardous. One was visited from the mainland, and amply repaid the trouble we had in reaching it, from the many beautiful species of *Actinia* and Sponges which were profusely scattered around. Although nothing new was observed, yet many of our favourite plants were in beauty and profusion. The snow-white blossoms of *Arenaria verna*, mixed with the yellow *Cistus*, and purple blossoms of *Thymus Serpyllum* and *Vicia lathyroides*, formed a carpet of nature's blending far superior to man's handiwork; whilst the murmur of the waves mingled with the screams of the Gulls and Guillemots, whose young peopled the ledges of the bold and magnificent rocks, tended to wean the mind from everything but what immediately surrounded us. On our way home, *Orchis conopsea* and *Sinapis alba* were found in profusion; and the following Lepidoptera were seen and captured, viz. *Polyommatus Alsus*, *P. Alexis*, *P. Artaxerxes*, *Lasiommata Aegeria*, *Hipparchia Semele*, and *Apamea oculatea*, a common Moth. After dinner, a paper was read by Dr. Hood on the Abbey, which was made doubly interesting from the many plans and drawings shown by Mr. Gray, the architect, in illustration. The Abbey was visited, and the improvements which have been so judiciously carried out, reflect the greatest credit on the architect.—The Rev. T. S. Goldie was elected a Member, and Mr. Charles Watson of Dunse was proposed by Dr. Stuart and Mr. Stevenson.

The Meeting at Dunse, on the 30th of July, was, I am sorry to say, a blank. An unexpected professional visit to Edinburgh prevented my being present; and on reaching the Berwick station, on my return, I met the Revds. J. D. Clark and Wm. Darnell, who informed me, that on their reaching the place of meeting, they neither found any one, nor, what was worse, anything prepared to sustain their failing strength. Mr. Stevenson, our worthy associate, writes, and says:—"I regret much that not one Member of the Club appeared here on Wednesday. I called at the Swan Hotel in the morning, but found that none of our

friends had come by train ; it was a matter of deep regret, as the day was extremely fine, and I had secured permission, from Mr. Hay of Dunse Castle, for an unrestricted ramble through all his grounds." As several of our Members had either forgotten the day, or lost their annual card, it has been thought necessary to return to the original plan of sending a notice to each Member a week before each Meeting, so that ignorance or forgetfulness may not be pleaded in future.

The last Meeting of the year was held at Alnwick, on the 24th of September, and was attended by Revds. J. D. Clark, Wm. Darnell, L. S. Orde, G. S. Thompson, and John Baird ; Mr. Selby, Mr. Church, Mr. Wm. Boyd, Mr. Tate, Dr. Tate, Mr. C. Rea, Captain Selby, and Mr. Embleton. John Church, jun., Esq. and Mr. Wilson, architect of Alnwick Castle, attended as visitors. John Church, jun., Esq., Rev. Thos. Lishman of Linton, and George Hughes, jun., Esq., of Middleton, were proposed as Members. Captain Selby was admitted. Wm. Dickson was appointed President, and Mr. Embleton reappointed Secretary.

It was not to be expected, Gentlemen, that our Club, after the irreparable loss we had sustained, could in the short space of twelve months regain its vigour and previous activity ; yet, little as may appear in our Transactions as to the results of our Meetings in a scientific point of view, we have the pleasing satisfaction to know that the bonds of friendly intercourse have been kept together, and that the chain that binds us has been extended. The path we have to follow has been too clearly delineated for any one to err from, except wilfully. The ties that bind us together are woven by the hands of Nature ; wealth and rank are only recognized by us as Members of this Club, so far as they are used for the advancement of that science which we profess humbly to follow, for the advancement of our fellow-creatures and the glory of the Omnipotent Creator. Much as we have done, there remains much for us all yet to do. Neither the Fauna nor the Flora of the district is exhausted ; for Mr. Hardy of Penmanshiel has discovered no fewer than ninety species of Lichens not included in any of our lists previously published, and there are many departments intimately connected with our Club which have been as yet scarcely touched upon. The various manuscripts left by our Founder, in connexion with his work on the Eastern Borders, have been placed by Mrs. Johnston entirely at the service

of the Club; and I sincerely hope we may be able, by uniting, to complete the work in a manner that may reflect credit upon the Club, and prove to the world how deeply we honour and revere his memory.

The Farne Islands, with an Account of their Geology, Botany, Zoology, and Ancient History. By GEORGE TATE, F.G.S.

IN this Monograph on the Farne Islands I shall give a description of their physical features, accompanied with notices of their Archæology, an account of their Geology, Botany, Conchology, and Ornithology, with lists of fossils, plants, shells and birds, and conclude with a brief sketch of their curious ancient history.

The Farne Islands are from one and a half to five miles eastward from the Northumberland coast; the nearest point of land is Monkshouse, and Bambro Castle is two miles distant. Their number is from fifteen to twenty-five, according to the state of the tide; for some are covered at full and even at half tide, and others which appear only one island at low water, form two or three when the tide is high. There are two groups of these islets, separated from each other by the Ox Scar road, which is about one mile broad and from five to eight fathoms deep, and through which ships of any burden may pass, though not without danger, as the Ox Scars—rocks covered by the sea—lie near to the passage.

The Farne, sometimes called the House Island, is the largest and nearest to the land, and its name is applied to the whole; but each individual islet and rock have their own distinctive names, given to them long ago, from some real or imaginary quality or feature. Farne has usually been derived from a supposed Celtic word signifying a recess; but I can find no such root in the Celtic language; and, moreover, according to Nennius, whose History was written early in the ninth century, the ancient British name was 'Medcaut.' Farne may, with more probability, be referred to the German '*feiern*,' to rest from labour,—a term descriptive of this secluded islet when it became the favourite retreat of hermits, who here in retirement sought repose from the labours and struggles of the world.

Some ancient documents printed in Raine's History of North Durham show, that the old names of the various islands have, for the most part, continued in use to the present time, with slight modifications; they appear in an early metrical Life of St. Cuthbert; in a curious charter of the twelfth century, making

regulations respecting the seals caught near the islands by the fishermen of Bambro; in a manuscript note by Thomas Lawson, a monk of Durham; and in a document written about the year 1690. In the following Table the names from these several sources are given, along with those now in use.

Early Metrical History of St. Cuthbert.	Charter of Twelfth Century.	Lawson's Manuscript Note.	Document about 1690.	Names now in use.
Farne. Wedum. Reliqua Wedum. Stapheleland. Fossheland. Binæ Wawmes.	Farne. Wedum. Altera Wedum. Stapel eland. Fos eland. Wahum. Altera Wahum. Harecarres.	Farne. West Wedoms. Est Wedoms. Stapleland. Fossland. South Walms. North Walms. Hardcarres.	House Lands. Two Wideopens. Stapleland. Brownsman. Two Wawmses.	Inner Farne. West Wideopen. East Wideopen. Staple. Brownsman. South Wawmses. North Wawmses. Big Harcar. Little Harcar. Big Scarcar. Little Scarcar.
Harecarres.			Harcus.	Big Harcar.
Scarfcarrs.		Scarphcarrs.	Two Scarcars.	Little Scarcar.
Crumbstan. Langestand. Meggestand. Knoke. Kumestand.	Langstan.	Cromstane. Langstane. Duæ Megstanes. Knokys. Knyfestane.	Crumstone. Langstones. Meggstone. Noxes. Knivestone.	Crumstone. Longstone. Megstone. Noxes. Nivestone.
Clovenstan.	Cloven Carres.	Clofyncarre. Oxcarres. Merecarres. Uttcarres.	{ Clove Car. Blue Caps. Ox car. Swedman.	{ Clove Car. Blue Caps. Oxscar. Swedman. Outcarres.
			Nameless Rock.	{ Nameless Rock. Roddam and Green. Northern Hares.

Most of these names are of Anglo-Saxon origin, and are formed, as was usual with our forefathers, when giving names to places, of a substantive and a definitive term; *carr* and *stan*, the Anglo-Saxon for 'rock,' and *eland* for 'island,' occur in not a few; with these are combined the definitive terms *staphel*, signifying a pile or heap, descriptive of the piled-up rocks forming the pinnacles or pillars on the south side of the Staphel; *cloven* or *clofyn*, indicating the cleft condition of the rocks forming that island; *lang*, *crumb*, and *meg* are archaic forms of 'long,' 'crooked,' and 'strong.' *Scarph Car*, now corrupted into *Scar Car*, comes from an old German word signifying sharp or acute. The *Mere Carres*, now called *Swedman*, are *sea* rocks covered by the tides, and the *Utt Carres* are modernized into *Out Carres*, which are not far from Monkshouse. The *Wedums*, now corrupted into *Wideopens*, are near to the Farne; and the name may have come from *wedan*, to rage, and may be descriptive of

the tempestuous waves which break over the island. *Fossceland*, some time prior to 1690, was superseded by Brownsman; its position is indicated in the early poetical Life of St. Cuthbert, where it is said, "Stapheleland cum Fosseland conjuncta probatur;" for the two islands are separated by a narrow channel, which is dry at low tides. The Celtic *foss* means a ditch or trench, but its application as descriptive of the island is not obvious. In the more modern name, as well as in Swedman, we may have the Celtic *maen* for 'rock.' Other names, such as Harecarres and Oxcarres, have probably been given from some fancied resemblance which the form of the rocks had to these animals.

On a fine summer day, an excursion to these islands is a source of pleasure, from the novelty of the objects which arrest attention, and from the interesting associations which cluster around them. A boat for this purpose, with skilful and intelligent seamen, can be obtained either at Monkshouse or North Sunderland.

The Farne, or House Island, is the largest and most important of the group. It is of an irregular quadrangular form, and at low water has an area of about sixteen acres, eleven of which are almost entirely bare rock. The soil is light and peaty, resting on a subsoil of clay from 2 feet to 3 feet thick, beneath which is the basaltic rock. Formerly, especially in the days of the monks, barley was grown successfully upon it; in 1855 it supported twelve sheep, but at present no animals are kept, nor is any portion (excepting small garden plots) in tillage. We observed on this island forty-eight indigenous plants, the rarest being the Danish scurvy-grass (*Cochlearia Danica*). The south and west sides of the island present precipitous cliffs of rudely columnar basalt, rising black and frowning to the height of about 80 feet. It slopes towards the water on the east side, where it is protected by other islands, and where there is a fitting landing-place for boats. To the north, as an ancient author graphically describes it, "it is open to the whole force of the waves, in the midst of which it lies like the broken and defenceless hull of a shipwrecked vessel."

All the islands are more or less deeply fissured,—a common phænomenon in basaltic rocks. One of these fissures, on the north-west part of the Farne, is called the *Churn*, and extends from the sea into the island for some distance, being partly bridged over with rock, and having an opening upward at the farther end. When a storm comes from the north, the waters at half-tide rush with violence up this chasm, and are forced upwards through the perforation, and form a magnificent column, rising in the air to the height of 90 feet, which can be distinctly

seen from the shore at Monkshouse. The columnar character of the basalt is very interestingly shown by the pinnacles or pillars which rise out of the sea, apart from the mass of the islands. On the south side of the Farne, one of these stupendous columns is nearly 60 feet high. It stands in the midst of the sea in rude majesty, like a memorial monolith dedicated to the memory of the numerous voyagers who have been entombed beneath the surging waters.

Not far from the landing-place on the east side of the island, St. Cuthbert erected his lowly Oratory; and still nearer to the water's edge stood the Hospitium, a larger building, where the brethren and strangers visiting the island might repose without intruding on the lonely anchorite. All relics of the Oratory long ago disappeared; but the Hospitium was in existence in the twelfth century; and though that too in the course of ages has passed away, yet a more recent, but an old building, called in Speed's Map "a Fishe Howse," stands on its site, and was, until recently, used as a stable.

On the brow of the hill are some interesting mediæval remains of two chapels and a tower. One chapel was dedicated to St. Mary, and it is now so completely a ruin, that all architectural features are lost; but of the original structure of the other, enough is left to show its character and determine its age. One original window in the south wall, and a small doorway at the south-east end, are of the decorated Gothic style; the window has a pointed arch with a quatrefoil centre, and two lights, each with a trefoil heading. This chapel is 40 feet by 18 feet, and is placed from E.S.E. to W.N.W. The ancient accounts of the House of Farne show, that extensive repairs, equal almost to its rebuilding, were made in this chapel from the years A.D. 1369 to 1372. Funds for this purpose were obtained chiefly from contributions by the pious and collections made by the monks. In the year A.D. 1370, gifts from divers persons were received, amounting to £29 13s. 2d. "Let their names," exclaim the grateful monks, as they record the benefactions, "be for ever written in the Book of Life!" Fifty years ago, this chapel was inhabited by the person who attended to the light on the tower; subsequently it became roofless, and was fast hastening to decay; but Archdeacon Thorp, with the laudable design of preserving this interesting relic of another age, and of supplying a place for occasional public worship on the island, caused it, in A.D. 1848, to be repaired and restored. This has been effected with excellent taste; the characteristic portions of the old building have been preserved, and the restorations are in accordance with the original design. The interior has been fitted up with oak sittings, and with a range of carved oak stalls

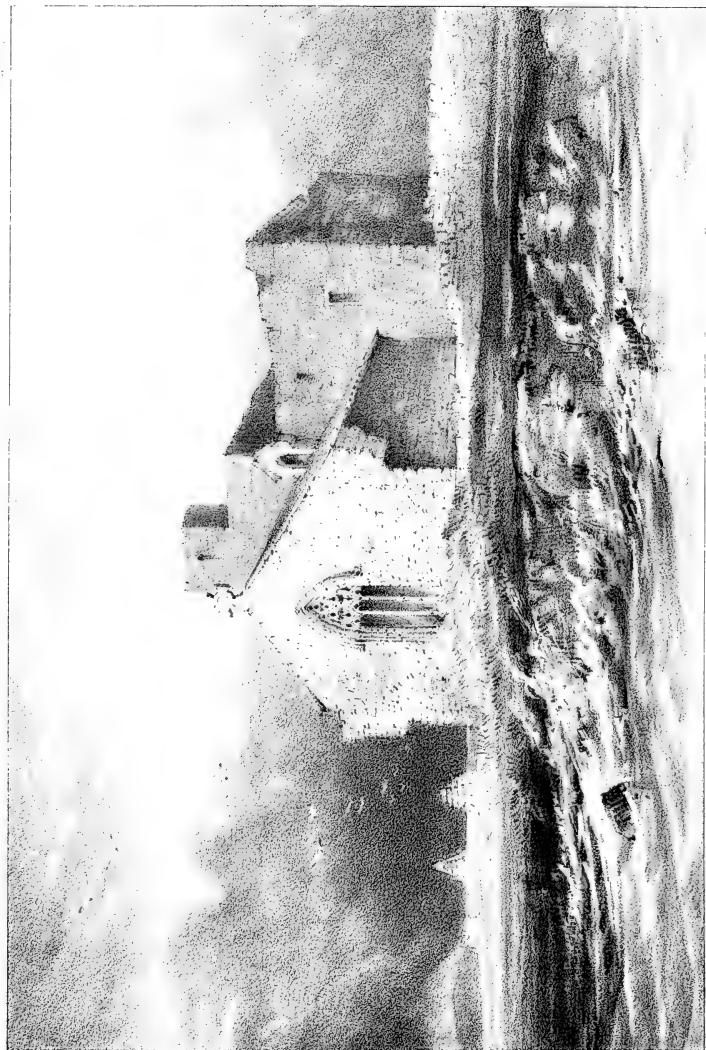
along the north and south walls. Within this sacred edifice is appropriately placed a monument to the memory of Grace Horsley Darling, the heroine of the Islands, who died October 20th, 1842, aged twenty-six years, with a noble tribute from the pen of Wordsworth, to

“The maiden gentle, yet at duty’s call
Firm and unflinching as the lighthouse rear’d
On the island rock, her lonely dwelling-place,
Or like the invincible rock itself, that braves
Age after age the hostile elements,
As when it guarded holy Cuthbert’s cell.”

Some other building had been connected with the chapel on the north, for, according to Grose’s drawing in A.D. 1783, a wall was then there nearly as high as the chapel, through which was a gateway with a circular arch. A portion of this arch still remains. At the west end of the chapel are the ruins of a small chamber, which, forty years ago, was vaulted over, and was 8 feet high, and which communicated with the chapel by means of a small window-like opening: this chamber was probably the dead-house. One large and two small stone coffins, which had been dug out of the ground adjoining, are lying in front of the chapel; the former, by popular tradition, is regarded as that of St. Cuthbert; but this is an error, for his remains were taken to Lindisfarne, whence they were removed, on an incursion of the Danes into Northumberland, and, after many years’ wandering, at length found repose at Durham. This coffin may with more certainty be referred to one of the masters of the monastery. Recently a monumental slab has been dug up, having upon it a portion of an incised cross.

A curtain wall, now broken down, formerly separated the sacred edifices from the tower, which stands at a little distance from them towards the north, on the brink of St. Cuthbert’s Gut, another deep fissure in the basalt. It is usually called Prior Castle’s Tower, as it was built “out of the grownde by him about the year 1500 as a place of security and defence.” It is a plain but strong structure, having much of the character of a Border Peel, with thick walls, a vaulted under-story, stone stairs, and small and narrow door and windows; it may have been secure, but it was gloomy, admitting but little of heaven’s cheerful light and air. In Queen Elizabeth’s reign, and subsequently, it was used as a fort; but in Charles the Second’s time it was devoted to a better purpose, for from that period, a fire was nightly kindled on the summit as a warning beacon to mariners, till new lighthouses were erected on a more commanding situation. Recently, Archdeacon Thorp has repaired it, enlarged the windows, and fitted up some rooms for occasional





J. W. & A. Barr, Eds. J. Sneyd lith. York.

Printed by W. Mackenzie, York.

ST. CUTHBERT'S CHAPEL AND PRIOR CASTLE'S TOWER ON THE FARNES.

residence, the walls of which are panelled with old carved oak brought from Durham. Notwithstanding these improvements, it is still gloomy enough, even for an anchorite*.

A large cross, which formerly stood on the highest point of the island, has been entirely removed; and the two wells, which monkish legends say sprung up through the miraculous agency of St. Cuthbert, have in these degenerate days lost their sweetness. None indeed of the wells either on the Farne or on the Fosseland springs from the rock, but all come out of the superficial covering, and therefore, though by digging into the subsoil, especially at the lower levels, water is readily obtained without a miracle, it has a brackish taste, from the saline elements with which the soil is more or less impregnated.

Eastward of the Farne and separated from it by a shallow channel are the Wedums or Wide-opens, which along with the Noxes form one island at low water, the connexion being made by a long ridge of rolled stones heaped up by the tides, and called "the Bridges." These islands are tenanted by rats and rabbits, and by numbers of sea fowl. Here are the nests of the Sea Swallow (*Sterna Hirundo*), the Sandwich Tern (*Sterna Cantia*), the Eider Duck (*Somateria mollissima*), and occasionally of the Sea Pie (*Hamatopus ostralegus*). On these islands we found 28 species of plants. In the olden times, the whole of the islands were supposed to be the residence of demons; and one of St. Cuthbert's great achievements was to drive them away from the Farne; but, according to the author of the Life of St. Bartholomew, they took refuge in the Wedums. When the wind howled and the sea broke over the islands, and the pillared rocks frowned horrible amid the storm, we can scarcely wonder that, in a superstitious age, solitary monks, giving rein to their morbid imaginations, should see demon forms revelling among the rocks and hear their shrieks in the roar of the tempest. The picture given of these demons by this author is imaginative and striking, and illustrates the superstitions of the period. "The brethern," says he, "when enjoying their rest after labour, have seen them on a sudden clad in cowls and riding upon goats, black in complexion, short in stature, their countenances most hideous, their heads long—the appearance of the whole troop horrible. Like soldiers they brandished in their hands lances which they darted after the fashion of war. At first the sight of the cross was sufficient to repel their attacks, but the only protection in the end was a circumvallation of straws, signed with the cross and fixed in the sands, around which the devils

* Plate II. is a view of St. Cuthbert's Chapel (with the east window as recently restored) and of Prior Castle's Tower, from an excellent sketch made by Mr. Archer, of London.

galloped for a while and then retired, leaving the brethren to enjoy victory and repose." In the days of the hermits, the Wedums were used as a burying-place for shipwrecked sailors.

Nearly a mile north-westward from the Farne are the Swedman, a bare rock covered by the tides, and the Megstone, which is devoid of vegetation, but whitened with the dung of cormorants, who rest here, but do not now breed upon it.

Of the outer group, the Fosseland, now called the Brownsman, and the Stapel are the largest and most interesting for natural objects. They have an elevation of about 40 feet above the sea, with a scanty vegetation, as the surface is for the most part rocky, and where there is soil, it is shallow and peaty, though in some parts resting on a clay overlying the basalt. On these islands we observed 33 species of plants, the rarest being *Chenopodium botryoides*, *Cochlearia Danica*, and a beautiful double variety of *Silene maritima*. Formerly sheep were kept on Fosseland, but now no animal lives upon it. The effect of this change of treatment is singular, for the grasses adapted to the maintenance of sheep and cattle are withering away before the unchecked inroads of the vigorous Sea Campion (*Silene maritima*), which is spreading over the whole island. The sea fowl are here very numerous, especially the Sea Pie, the Puffin or Tommy Noddy (*Mormon fratercula*), and the Sea Swallow or Common Tern; the Sandwich Tern and the Roseate Tern (*Sterna Dougalli*) are less abundant. There are on this island a deserted tower, which was formerly a lighthouse, and a house now used, during the summer, as a residence for the person who watches the islands and gathers the eggs of the sea fowl. Complaints have been made, and actions at law brought, by the conservators of the islands, against those who for mere sport shoot these birds, which injure nobody; but it is surely questionable policy to rob the poor birds of their eggs in a wholesale manner, year after year, for the purpose of sale, especially when the tendency of this proceeding is to destroy, and render scarce, creatures, which are a delight to naturalists, and a source of enjoyment to all who can relish the beautiful, the novel, and the curious.

On this island I had an opportunity of observing the tameness of the Eider Duck—the favourite bird of St. Cuthbert, who, monkish historians say, taught it gentleness and confidence. Close to the house it sat on its nest, undisturbed by the approach of strangers, quietly looking on with its meek eye without fear. The description of these birds in Bartholomew's Life is graphic:—"Some hatch their eggs close by the altar, and nobody presumes to hurt them, or even to touch their eggs without permission. With their mates they seek their sustenance in the deep. Their young, as soon as hatched, follow their mothers;

and when once they have swum over their hereditary waves, they never return to the nest; the mothers, too, forget all their recent tameness, and recover their wildness with their genial element*."

The Stapel lies southward of the Fosseland, from which it is separated by a narrow channel, dry at low tides. The pinnacles from which it derives its name are three rude pillars of basalt, about 40 feet high, standing in the sea apart from the island on the south. Formerly there were four of these pillars, but, some years ago, one of them was thrown down by a violent storm. Like other trap rocks, the columns are jointed, and broken into step-like ledges. On the summits, and on every narrow ledge and in every crevice, the Guillemots (*Uria Troile*) and Kittiwakes or Annets (*Larus tridactylus*) lay their eggs and bring forth their young. With amazing instinctive skill they drop their eggs on spots where, according to human judgment, they could not rest, but where they are maintained in security till the brood is hatched. Hundreds of these birds are sitting or standing on the rocks, hovering in the air or swimming in the sea, their plaintive cries mingling with the sound of the waves dashing around the base of the columns, and, with the hoarse gurgling of the waters up the wide and deep clefts of the rocks, add impressiveness to a scene, which, if once witnessed, cannot be forgotten. Notwithstanding the vast numbers of the birds crowded on and around these pinnacles, there seemed no contention among them—no striving for the mastery—no oppression of the weak by the strong; and I could not, on witnessing the harmony which prevailed, but wish that rational men would learn from the fowls of the air to live together in peace, trusting that the benevolent Father of all has provided enough for all his children.

The Wamses are two pretty large islands northward of the Fosseland, having a scanty vegetation on a peaty soil impregnated with the exuvæ of birds. On the North Wamses only five species of plants were observed, and on the South Wamses nine species, the principal being *Cochlearia officinalis* and *Silenemaritima*. The North Wamses is remarkable as the chief breeding-place of the Cormorant (*Carbo cormoranus*); and when approaching from leeward, a disagreeable smell is perceived at some distance, arising from the filthy nests of these voracious birds. Besides the Cormorant, the Black-backed Gull (*Larus fuscus*), the Herring Gull (*Larus argentatus*), the Eider Duck, the Puffin, and occasionally the Sheldrake or Oyster-Catcher (*Hamatopus ostralegus*), find here a fitting place for bringing forth their young.

The two Harcar Islands, which are a little to the east from the Wamses, and which at low water form only one island, demand a passing notice; for on these, the *Forfarshire* steamer was

* Donovan's Middle Ages, vol. iv. p. 239.

wrecked on the 5th September 1838, when 43 persons perished; nine only escaped in a boat, and nine others were saved by the noble exertions of Mr. William Darling and his heroic daughter. Part of the unfortunate vessel yet remains wedged into a cleft of the basaltic rock. There are a few patches of vegetation on these islets, consisting chiefly of *Silene maritima* and *Glyceria maritima*; here, however, are large colonies of birds—of the Gulls and Eider Duck, with a few of the Oyster-Catcher, which is usually a solitary bird, building its nest as far away from its congeners as possible.

The Northern Hares are little more than rocks raising their black backs above the sea; the *Sagina maritima* and *Glyceria maritima* only live here in small patches; but along the margin of the sea, the Eider Duck, the Sea Swallow or Common Tern, and the Sandwich Tern build their nests. Most of the other outer islands are rocks—bare, cleft, and fissured; on one of them, the Longstone, the far lighthouse is placed. This island is only 4 feet above high-tide mark, and when the storm rages, the sea spray is driven over it. A few years ago, so great was the mass of water breaking upon it, that the keepers with their families were compelled to flee for shelter to the upper rooms of the lighthouse. Five plants only occur in this island, the most abundant being *Glyceria maritima*, which flourishes, although frequently covered with salt water. The Oyster-Catcher or Sea Pie, the Common and Sandwich Tern, and the Eider Duck breed here. Additional interest is given to this island, because in this secluded sea-home Grace Darling passed the greater portion of her short life, and from this rock she and her father went forth on their mission of mercy to save the perishing voyagers of the *Forfarshire*.

The Crumstone is more than a mile southward from the Longstone,—a dark mass of irregular basaltic rocks washed over by every high tide. No land plant lives here, nor can birds find a secure place for their nests. Crowds, however, of Cormorants rest upon it; and their appearance when I saw them was singular, for, ranged in a rank, with their long necks stretched out and their short wings extended, they seemed in the distance like memorial crosses. But the Crumstone is chiefly interesting as being the only island on which the Great Seal now breeds. Mr. Selby was the first to determine the species to be the *Halichærus griseus* of Nilsson. Previously to the erection of the lighthouse it frequented the Longstone and neighbouring islands, but the presence of man has scared it away from them. These animals were formerly numerous; as many as forty individuals have been seen at one time resting on the Crumstone. Their usual length when full-grown is from 6 to 8 feet; the largest ever killed was

9 feet long, it weighed 40 stone, and yielded 20 gallons of excellent oil. The female brings forth one calf, in the month of November, which at first is 3 feet long, and is able in two weeks to follow its dam into the water. The Great Seal rarely wanders far from the Farne Islands. Another species, the Common Seal (*Phoca vitulina*), is occasionally seen swimming among the islands, but it does not breed on any; it formerly resorted in considerable numbers to Holy Island, where it is still observed to bring forth its young*.

The temperature of the islands is more equable than that of the mainland; the highest observed on the Longstone was 66° ; it is rarely at freezing-point; the lowest was on the 17th of February 1855, when it was 24.5° , while on the same day it was 9° below zero at Chillingham in Northumberland.

GEOLOGY.

Though the Farne Islands are of limited area, their geology is not without interest. All the rocks above high-water level are basalt, which is of the same character and age as that on the neighbouring coast at Bambro. It is composed of black augite and whitish felspar, the former being usually most predominant; occasionally it is amygdaloidal, the cavities being filled with calcareous spar. Externally it is black, but a fresh fracture presents a dark grey colour. The iron which is diffused through it is in the state of a protoxide, and hence it is magnetic; indeed, some specimens from the south-west corner of the Farne I found to possess polarity. It is of irregular thickness, but where it is in greatest mass it is about 90 feet in depth. It is rudely columnar, of which the Pinnacles afford a characteristic example. Though fissured in various directions, there appear to be some master fissures which have a more or less northerly course, and which, by the action of the tides and storms, have been converted into deep chasms. Of this description are the Churn on the Farne, which runs N.W. by N., and St. Cuthbert's Gut, which runs N.N.W.; others on the Stapel have a direction of N.W. by N., and N.W. The cliff-faces are towards the south and west; and the usual inclination or slope of the rock is towards the north-east.

Sedimentary or stratified rocks are visible at two points—in the channel between the Farne and the Wedom, and on the south side of Fosseland. The beds eastward of the Farne can only be seen when the tide is low; they consist of the following ascending series:—

Red metamorphic shale, very hard, immediately above the basalt, and containing a large number of *Productus Flemingii* and *Spirifer trigonalis*, along with *Orthis crenistria*;

* In the Annals of Natural History, vol. vi. p. 462, is an interesting account of the Great Seal of the Farne.

A thin bed of limestone, from which the rolled blocks have been derived that are piled up along the shore of the Wedom and Noxes.

White fine-grained sandstone, which is seen near to the Noxes when the tide is low.

These beds appear to lie in a hollow of the basalt; for at the Farne the dip is along with the basalt N.E. by E., but at the Noxes the sandstone dips westward.

The other group of stratified rocks, which occupy a depression in the basalt southward of Fosseland, is of a more interesting character, for the organic remains are more varied and abundant, and the section, although partly obscured by overlying loose stones, is covered only by the highest spring tides. The position of these rocks is peculiar: they lie upon basalt which has a cliff-face 20 feet high towards the south, and they abut against another basaltic cliff which rises 20 feet higher; while around, at a greater or less distance, are basaltic rocks.

Of these stratified beds there are about 90 feet, and their succession, as far as I could determine, in an ascending series is as follows:—

Indurated sandstone immediately above the basalt;

Arenaceous calcareous shale much indurated and fossiliferous;

Chert or metamorphic shale with a conchoidal fracture, sharp edges, and very hard, also fossiliferous.

Limestone very much altered, and varying in character; cherty, compact and dark in one part, buff-coloured and magnesian in another, and in others red and crystalline.

Indurated or cherty beds abutting against the basalt, and perpendicular in position.

The general direction of the group is from N.W. to S.E., and the dip is very considerable, though irregular, being in one part with the basalt E.N.E. 20°, and in another perpendicular. These beds present a striking instance of metamorphic action from basalt, and a distinct proof of the igneous origin of that rock. The limestones are indurated and crystalline; and the shales, which in ordinary localities are soft and earthy, are here converted into chert and jasper. They have been torn from the mass with which they were originally connected, lifted up, altered in structure, and squeezed into their present position by the outburst of igneous rocks.

Fossils are not observable in the sandstone or limestone; but in the cherty shale beds, notwithstanding their metamorphism, several organisms are sufficiently well preserved to admit of determination. The most interesting of these remains are two entire specimens of Trilobites, with the head, body and tail connected. Detached parts of this curious animal I have frequently

found in several localities in Northumberland, but never previously a complete specimen. It belongs to the genus *Griffithides* of Portlock; but as it differs from any recorded species, I have described and named it, after the locality, *Griffithides Farnensis*.

From the stratified beds of Farne and Fosseland, I have determined twenty-eight species of organisms, the greater proportion of which are Brachiopods; they correspond generally with those found at North Sunderland, and more especially at Howick, and they indicate the Farne strata to be of equivalent age, and to belong to one of the lower groups of the Mountain Limestone formation.

On these islands are patches of the Boulder formation, which covers over many parts of Northumberland; it forms the subsoil of the Farne, and on the Stapel this same clay is 3 feet thick, overlying the basalt.

The basalt of these islands is not a dyke passing vertically through the strata, but a portion of the overlying or interstratified igneous rocks, which, commencing at Kylee, and passing by Belford, Bambro, Craster, Howick, Ratcheugh, Alnwick, and Shildykes, extend south-westward through the county, and which, appearing like a stratum among sedimentary rocks, are frequently called the Whin-sill. Regarding their origin and introduction among the strata, different opinions have been advanced; Professor Sedgwick maintaining that the basaltic lava was erupted *subsequently* to the deposition of the carboniferous beds, and forced among them along their surfaces of stratification; while Mr. Hutton is of opinion that the basalt was erupted at one or several different periods *during* the deposition of the carboniferous rocks, so as to be covered up by portions of them, and to be thus interstratified with them. With the limited number of facts presented by the Farne, it would be out of place to discuss the general question here; but it may be conclusively inferred from these facts, that the basalt of the Farne was erupted *subsequently* to the deposition of the sandstone, limestone, and shale beds on Fosseland, for that eruption has obviously been the cause of the isolated, metamorphic and disturbed condition of these beds.

LIST OF FOSSILS.

BRYOZOA.

Fenestella plebeia, M'Coy. In red shale and chert, Fosseland.

— *undulata*, Phil. Fosseland.

— *crassa*, M'Coy. Fosseland.

Sulcoretopora parallela, Phil. Fosseland.

BRACHIOPODA.

Spirifer trigonalis, *Mart.* Farne, Fosseland : one of the commonest fossils in the Mountain Limestone of Northumberland.

— *glaber*, *Mart.* Fosseland.

— *lineatus*, *Mart.* Fosseland.

— *imbricatus*, *Sow.* Fosseland.

— *sexradialis*, *Phil.* Fosseland.

Orthis crenistria, *Phil.* Farne.

Productus Flemingii, *Sow.* Farne, Fosseland.

— *lobatus*, *Sow.* Farne, Fosseland.

— *scabriculus*, *Mart.* Fosseland.

— *semireticulatus*, *Mart.* Farne.

— *Martini*, *Sow.* Fosseland.

— *punctatus*, *Mart.* Fosseland.

Chonetes sordida, *Sow.* Fosseland.

Discina nitida, *Phil.* Fosseland.

Lingula marginata, *Phil.* Fosseland.

CONCHIFERA.

Amesium Sowerbyi, *M'Coy.* A pretty species with zigzag markings on the surface. Fosseland; it is also found at Denwick and Howick.

Aviculo-pecten æqualis, *M'Coy.* Fosseland.

— *Hardingii*, *M'Coy.* Fosseland.

Myophoria carbonaria, *Sow.* Fosseland : this species occurs at Holy Island.

GASTEROPODA.

Naticopsis plicistria, *Phil.* Fosseland.

CEPHALOPODA.

Nautilus globatus, *Sow.* Fosseland.

CRUSTACEA.

Genus GRIFFITHIDES, Portlock.

Cephalic shield semielliptical; glabella gibbous, rounded in front, contracted posteriorly into a narrow neck, without segmental furrows; eyes lunate; thorax of nine segments, or with the neck-segment ten; pygidium with segmental furrows in both axial and lateral lobes. This genus has been found only in the Mountain Limestone formation; six species from Britain have been described.

GRIFFITHIDES FARNENSIS, n. s. Fosseland. Plate I. fig. 4.

Ovate: length including mucro .92 inch, greatest breadth .53; *glabella* pyriform, rounded in front, and gradually narrowing towards the base; *eyes* prominent, with numerous hexagonal lenses; *wings* broad, convex, with about ten longitudinal parallel striæ on the outer side, partly concealed in front, and extending posteriorly, and ending in spines near the sixth thoracic segment; *thorax*, length .22, breadth .15, anterior axial segments broader

than those of the sides; *pygidium*, length $\cdot 25$, breadth $\cdot 35$, with sixteen axial and ten lateral segments, a distinct broad margin with faint irregularly bifurcating striæ and minute granulations prolonged into a pointed mucro; both the axial and lateral segments are ornamented with one row of small tubercles, which are more prominent on the axial segments; the mucro is in length usually $\cdot 15$, but in some specimens extends to $\cdot 2$.

The species allied to *G. Farnensis* are *G. mucronatus* and *mesotuberculatus* of M'Coy, and *G. Eichwaldi* of Fischer; but the two latter are rounded posteriorly, and the former has a smooth pygidium, while our species has a mucro, and is ornamented by tubercles. It occurs also at Holy Island, North Sunderland, Budle, Howick and Denwick. The tail of this trilobite was figured by Dr. Buckland in his Bridgewater Treatise, but under the wrong name of *Asaphus caudatus*, which is a Silurian species.

BOTANY.

The Botany of the Farne Islands affords but little that is peculiar, less indeed than might have been expected, as on basalt, in other localities, the rarest of our indigenous plants are found. No trees grow upon the islands, and it is remarkable that no Fern nor any of its allies is seen there. There is, however, little shelter for the more delicate vegetable productions. The plants which are most abundant are such as delight in a marine habitat; the *Silene maritima* adorns several of the islands with its white flowers, and the pretty little pink *Glaux maritima* spreads along the sea margins. The plants of greatest rarity are *Cochlearia Danica* and *Chenopodium botryoides*, which has only recently been noticed as a Northumberland plant. The total number of indigenous species observed is sixty-two, which are given in the following list, the materials for which have been chiefly furnished by my son, Dr. G. R. Tate:—

PLANTS.

Class DICOTYLEDONES.

Order RANUNCULACEÆ.

Ranunculus acris. Farne, Wedom.
— *repens*. Farne, Wedom.

Order CRUCIFERÆ.

Cochlearia officinalis.
— *Danica*. Farne, Wedom, Foss., Stapel.
Cakile maritima. Wedom, Northern Hares, Noxes.

Order CARYOPHYLLÆ.

Silene maritima.
Sagina maritima.
— *procumbens*. Wedom, Foss., Stapel.
Alsine marina. Longstone.
Stellaria media. Farne, Stapel.
Cerastium triviale. Farne, Foss., Stapel.
— *atrovirens*. Farne, Foss., Stapel.
— *semidecandrum*. Farne, Foss., Stapel.

Order LEGUMINOSÆ.

Lotus corniculatus. Farne.
Trifolium repens. Farne.

Order ROSACEÆ.

Potentilla anserina.

Order UMBELLIFERÆ.

Conium maculatum. Wedom.

Order RUBIACEÆ.

Galium Aparine. Foss., Wawmses.

Order COMPOSITÆ.

Bellis perennis. Farne, Wedom.
Arctium Lappa. Farne, Wedom.
Senecio Jacobæa. Farne, Wedom.
Leontodon Taraxacum. Farne, Foss.,
 Stapel.

Carduus arvensis.
 — *lanceolatus.*
Sonchus oleraceus. Farne.

Order BORAGINÆÆ.

Lycopsis arvensis. Farne.
Myosotis arvensis. Farne.

Order LABIATÆ.

Prunella vulgaris. Farne.

Order PRIMULACEÆ.

Glaux maritima.

Order PLUMBAGINÆÆ.

Armeria maritima. Farne, Foss.

Order PLANTAGINÆÆ.

Plantago Coronopus.
 — *maritima.* Longstone.

Order CHENOPODIACEÆ.

Chenopodium botryoides. Foss.
Atriplex rosea.
 — *angustifolia.*

Order POLYGONACEÆ.

Rumex acetosa.
 — *crispus.*
 — *obtusifolius.* Farne.

Order URTICACEÆ.

Urtica urens. Farne, Wedom, Foss.
 — *dioica.* Farne.

Class MONOCOTYLEDONES.

Order ORCHIDÆÆ.

Orchis latifolia. Foss.

Order IRIDEÆ.

Iris Pseud-acorus. Farne.

Order JUNCACEÆ.

Juncus supinus. Foss.
 — *Gerardi.* Farne.
Luzula campestris. Farne.

Order CYPERACEÆ.

Carex distans. Farne.
 — *glauca.* Farne.
 — *vulpina.* Farne.

Order GRAMINÆÆ.

Agrostis vulgaris. Stapel.
 — *alba.* Foss.
Avena flavescens. Farne.
Holcus lanatus. Foss., Wawmses,
 Stapel.
Poa annua.
 — *trivialis.* Farne, Wedom.
 — *pratensis.* Wedom.
Sclerochloa maritima.
Dactylis glomeratus. Farne.
Festuca rubra.
 — *ovina.*
 — *duriuscula.*
Triticum caninum. Foss., Wawmses.

Through the kindness of Mr. Darling of the Longstone, who has supplied me with many specimens, I am enabled to give a pretty large list of the Mollusca which live on and around the Farne Islands. Some additional interest may be given to the list from the circumstance, that many of these specimens were gathered by Grace Darling. Most of the species were found after high tides and stormy seas among the shell-sand between the Northern Hares and the Longstone. The littoral species, such as *Rissoa*

and *Littorina*, have been chiefly obtained from the shores of Fosseland. This assemblage of shells consists of sixty-six species, three of which are land-shells, and for the most part they belong to what the late Professor Forbes designates European and Celtic types, with a few Boreal forms. *Murex erinaceus*, which is a southern shell, has been doubtfully recorded as a Northumberland species, as only two dead specimens had been found among ballast; but as several specimens, some of them living, have occurred at the Farne Islands, there can now be no doubt of this species being a native of our seas. *Psammobia tellinella*, *Lucina borealis*, and *Arca tetragona* are among the rarer species. One specimen of *Acmaea testudinalis* has been found,—a species not uncommon on the western coast, but which has not before been seen in the Northumberland seas.

MOLLUSCA.

Class GASTEROPODA, *Cuvier*.

Ord. PROSOBRANCHIATA, *M.-Edw.*

Fam. MURICIDÆ.

Murex erinaceus.

Fusus Islandicus, *Chemnitz*.

Fam. BUCCINIDÆ.

Buccinum undatum.

Nassa reticulata.

Purpura lapillus.

Fam. CYPRÆIDÆ.

Cypræa Europæa, *Montagu*.

Fam. NATICIDÆ.

Natica Alderi, *Forbes*.

Velutina lævigata.

Fam. CERITHIADÆ.

Aporrhais pes-pellicani.

Fam. TURRITELLIDÆ.

Turritella communis, *Risso*.

Fam. LITTORINIDÆ*.

Littorina littorea.

— *neritoides*.

— *rudis*, *Donovan*.

— *tenebrosa*, *Montagu*.

— *patula*, *Jeffreys*.

Lacuna pallidula, *Da Costa*.

Lacuna vineta, *Montagu*.

Rissoa striata, *Montagu*.

— *ulvæ*.

— *parva*.

— *parva*, *var. interrupta*.

Skenea planorbis.

Fam. TURBINIDÆ.

Trochus cinerarius.

— *ziziphinus*.

— *helcinus*.

Fam. FISSURELLIDÆ.

Emarginula reticulata, *Sowerby*.

Fam. CALYPTREIDÆ.

Pileopsis Hungaricus.

Fam. PATELLIDÆ.

Patella vulgaris.

— *pellucida*.

— *lævis*.

Acmaea virginea, *Müller*.

— *testudinalis*, *Müller*.

Fam. CHITONIDÆ.

Chiton cinereus.

Order PULMONIFERA.

Fam. HELICIDÆ.

Helix virgata.

— *ericetorum*.

— *alliarum*.

* To my friend Mr. Pickering, of London, I am indebted for assistance in determining the critical species of this family.

Class CONCHIFERA, *Lamarck*.

Fam. VENERIDÆ.

Fam. OSTREIDÆ.

Anomia Ephippium.

— aculeata.

Pecten pusio, *Pennant*.

— maximus.

— opercularis.

— tigrinus.

Fam. MYTILIDÆ.

Mytilus edulis.

Modiola Modiolus.

— barbata.

Fam. ARCADÆ.

Arca tetragona.

Fam. CARDIADÆ.

Cardium edule.

— Norvegicum.

Fam. LUCINIDÆ.

Lucina borealis.

Kellia suborbicularis, *Montagu*.

Fam. CYPRINIDÆ.

Cyprina Islandica.

Venus fasciata, *Donovan*.— striatula, *Donovan*.

— casina.

Artemis exoleta.

Tapes pullastra, *Wood*.

— virginea.

Fam. MACTRIDÆ.

Mactra solida.

Fam. TELLINIDÆ.

Tellina crassa, *Pennant*.Psammobia Ferröensis, *Chemnitz*.

— tellinella.

Syndosmya alba, *Wood*.Donax anatinus, *Lam*.

Fam. SOLENIDÆ.

Solen siliqua.

Fam. MYACIDÆ.

Mya arenaria.

Saxicava rugosa.

— arctica.

Fam. ANATINIDÆ.

Thracia phaseolina, *Lam*.

CRUSTACEA.

Subclass MALACOSTRACA.

Fam. ANOMOURA.

Order DECAPODA.

Lithodes Maia, *Leach*.

Fam. BRACHYURA.

Pagurus Bernhardus, *Linn*.Hyas araneus, *Linn*.Porcellana longicornis, *Linn*.Cancer pagurus, *Linn*.Galathea strigosa, *Fabr*.Portunus puber, *Linn*.

— depurator.

A few incidental notices of the Birds on the Farne Islands have been given in the general description, but I am enabled, through the kindness of one of our Members—the distinguished ornithologist, Prideaux Selby, Esq.,—to present the following complete

“*Catalogue of the BIRDS which inhabit or resort to the Farne Islands.*”

Order INSESSORES, Vigors.

Tribe FISSIROSTRES, Cuv.

Fam. HIRUNDINIDÆ, Vig.

Genus HIRUNDO, Linn.

Hirundo rustica. Common or Chimney Swallow.

Breeds in the tower of the old lighthouse and chimneys of the dwelling of the lighthouse keeper.

Tribe DENTIROSTRES, Cuv.

Fam. SYLVIADÆ, Vig.

Genus ANTHUS, Bechst.

Anthus aquaticus, Bechst. Rock Pipit.

Is a permanent resident upon the different islets; breeds in the clefts and upon the shelves of rocks; feeds upon marine insects and flies.

Tribe CONIROSTRES, Cuv.

Fam. CORVIDÆ, Leach.

Genus CORVUS, Linn.

Corvus monedula. Jackdaw.

Breeds in the rabbit-holes upon the Farne, as well as in the clefts of the perpendicular rocks.

Order GRALLATORES, Ill.

Fam. SCOLOPACIDÆ, Vig.

Genus TRINGA, Linn.

Tringa maritima, Brunn. Rock or Purple Tringa.

A few pairs of this species generally remain, and breed upon some of the islets; the great body retire in the spring to higher latitudes.

Fam. CHARADRIADÆ, Vig.

Genus HÆMATOPUS, Linn.

Hæmatopus ostralegus, Linn. Pied Oyster-Catcher, or Sea Pie.

Breeds upon several of the islands; though not strictly web-footed, it swims well.

Genus CHARADRIUS, Linn.

Charadrius hiaticula, Linn. Ring Plover.

Breeds upon the gravel beds in some of the creeks and bays of the islets.

Genus STREPSILAS, Ill.

Strepsilas interpres, Leach. Turnstone.

A few generally remain during the summer, but their nest has not been found.

Order NATATORES, Ill.

Fam. ANATIDÆ, Leach.

Genus SOMATERIA, Leach.

Somateria mollissima, Leach. Eider, or St. Cuthbert's Duck.

These birds having been protected for some years, are now pretty numerous. Towards the middle of April the Eiders assemble in groups along the shores of the mainland, from whence they cross to the islands early in May. The down of the Eider is remarkable for its softness and elasticity.

Fam. ALCIDÆ, Vig.

Genus URIA, Briss.

Uria Troile. Guillemot.

A large colony of this species breeds upon the summits of the pinnacles, and upon the ledges of the adjoining rocks; they make no nest, and lay but one large egg, which by its shape, being very narrow at one end and broad at the other, is prevented from rolling to any distance. Young herrings and sprats constitute their chief food.

Alca Torda, Linn. Razor Bill. Auk.

A few of this species annually breed in company with the Guillemots; their eggs are not easily distinguished from those of the latter bird.

Genus MORMON, Ill.

Mormon fratercula, Temm. Puffin. Tommy Noddy.

Resorts to the Wawmses, where it burrows in the vegetable mould; it lays but one egg, yellowish white, and sits for a month.

Fam. PELECANIDÆ, Leach.

Genus CARBO, Meyer.

Carbo cormoranus, Mey. The Cormorant.

These birds, which breed in company, have frequently changed the place of their resort. They make a large nest of sea-tangle, sometimes more than 2 feet in height, and lay from four to six eggs, small in proportion to the size of the bird, coated with a rough, white, calcareous deposit.

Carbo cristatus, Temm. Crested Shag, or Green Cormorant.

Now a rare bird upon the islands. Formerly a few pairs bred annually in the clefts and upon the ledges of the pinnacles.

Fam. LARIDÆ, Leach.

Genus STERNA, Linn.

Sterna arctica, Temm. Arctic Tern.

Differs from the Common Tern (*Sterna Hirundo*) in having the breast and under parts of the same grey as the back; bill shorter, and generally wholly red; outer tail-feathers longer. The largest colony occupies a considerable portion of the Brownsman.

Sterna Dougalli, Mont. Roseate Tern.

Rather larger than the Arctic Tern; the back of a paler grey; the breast and belly of a rich salmon colour, and the tail longer; breeds upon the Brownsman and one of the Wawmses.

Sterna Cantiaica, Gmel. Sandwich Tern.

Much larger than the two former, and was sometime ago very numerous.

Sterna Hirundo. Common Tern, or Sea Swallow.

A few pairs of this species occasionally breed in company with the Arctic Tern.

Genus LARUS, Linn.

Larus fuscus, Linn. Lesser Black-backed Gull.

Breeds in large numbers upon the Wawmses and Harcar Island. The eggs are rich, and when hard-boiled, highly esteemed.

Larus argentatus, Brunn. Herring Gull.

A few individuals breed annually in company with *L. fuscus*; they are easily distinguished by the paleness of the upper parts of the body, their flesh-coloured legs and longer bill.

Larus tridactylus. Kittiwake.

Great numbers of this oceanic species breed in the clefts and narrow ledges of the pinnacles and perpendicular rocks opposite. They differ from the more typical *Laridæ* in the structure of the hind toe, which is merely a stump, and unprovided with a nail. They arrive in May, and leave this coast as soon as the young have quitted the nests, for warmer climes.

In addition to the foregoing list, the Common Wild Duck, *Anas Boschas*, the Teal, *Querquedula Crecca*, and the Wigeon, *Mareca Penelope*, frequently visit the islands during winter in stormy weather and severe frosts."

ANCIENT HISTORY.

In the general description of the Islands, some notices were necessarily given of its ancient history; but as that history is

both curious and instructive, this paper would be incomplete without some further details.

Soon after the introduction of Christianity into Northumberland, these desolate rocks were selected by religious persons as a retreat from the world. Aidan, who was the first Bishop of Lindisfarne, and who held the see from A.D. 635 to A.D. 652, occasionally retired to the Farne for the sake of solitude and secret prayer. But St. Cuthbert, the popular Northumbrian saint, gave celebrity to the island. His history and character were remarkable. Originally a shepherd-boy, he was successively a monk at "Mailross," Guest-master at Ripon, and rose to be Prior to the fifth Bishop of Lindisfarne. In this office he was distinguished by his piety, zeal, and self-denial, and by his labours to convert and instruct the barbarous Northumbrians, frequently taking journeys for this purpose into the desert and mountainous parts of the county. His mind, however, was deeply tinctured with the superstitions of the period; and in A.D. 676 he retired from the society of his fellow-men to the solitude of the Farne. Here, near the sea-shore, he erected a lowly Oratory, of a circular shape, and five perches in diameter; the wall was made of unhewn stone and turf, and on the outside was not higher than a man; but within, the cell was deepened by the excavation of the earth, so that the eyes might be kept from wandering, and might gaze on nothing except the heavens above. The roof was constructed of rough timber and thatched over with bent-grass; a slight partition divided it into two parts, in one of which he lived, and in the other prayed. To accommodate strangers who might visit the island for advice or devotion, he built a larger house, called the Hospitium, close to the shore at the landing-place. In this lonely and rude dwelling the hermit lived nine years, engaged partly in cultivating the soil and in raising barley with success, but chiefly in practising austerities, in giving instruction and consolation to those seeking his aid, and, according to the monastic histories, in working wonderful miracles.

On the deposition of Timberet, the first Bishop of Hexham, St. Cuthbert was, in A.D. 684, elected his successor by a general synod, which met at Twyford on the Alne; but it was not until Egfrid, king of Northumbria, attended by his nobility, had sailed to the island, and besought him on bended knees to accept the episcopate, that St. Cuthbert consented to become Bishop of Lindisfarne, Eata being translated to Hexham. He, however, had occupied his dignified position only two years, when his passion for solitude revived. He resigned his see, abandoned his duties and honours, and again retired to his Oratory on the Farne, where, in the course of three months, he fell

a victim to his austerities, in A.D. 687. His desire was, that his body should be buried near his Oratory, on the eastern side of a holy cross he had erected there; but, yielding to the earnest entreaties of his brethren, he consented that his remains should be interred within Lindisfarne Church.

In a superstitious age, there was no lack of successors to one who was canonized for his real or supposed virtues. Ethelwald, originally a monk of Ripon, had his solitary abode on the Farne from A.D. 687 to A.D. 699. He repaired the Oratory of St. Cuthbert, which had gone to decay, but in so humble a manner, that the chinks in the wall were stopped with hay and mud; and to protect himself from violent winds, he suspended a calf's skin in one corner. Felgeld, a contemporary of the Venerable Bede, appears as the next hermit, and for him, Eadfrid, the eighth Bishop of Lindisfarne, rebuilt St. Cuthbert's Oratory, which had again become ruinous. Other hermits succeeded, few of whose names are preserved. But the Farne emerges again from obscurity in A.D. 1149, under Bartholomew, one of the notable men in the North of England in the twelfth century, and whose Life, by Galfrid of Coldingham, which is printed in the "*Acta Sanctorum*," is a curious specimen of mediæval literature. He was born in the neighbourhood of Whitby, and his early life was dissolute; but after travelling in Norway, and being favoured with "visions," he became a monk of Durham. According to the monkish biography, his career was full of miracles. On his first visit to the church of Durham, the huge crucifix returned his salutation! But his future history was determined by another vision. St. Cuthbert appeared to him, took him to the Farne, and told him that the Oratory and Hermitage there were reserved for him. Obedient to this supposed call, with the permission of his Prior, he left his convent and retired to the Hermitage. He found it, however, preoccupied by Elwyn, who received him ungraciously, and the Oratory—sacred in the estimation of the pious—used as a sheepfold, and filthy. Here he lived, sometimes with a companion, but usually alone, for forty-two years and a half. His life, at first austere, became more rigorous as it advanced. At first he indulged himself with fish, but that luxury was abandoned, and at length he even denied himself water, and existed exclusively on bread and roots. His fame was widely spread; he was deeply revered by men, but envied by the "Evil One," who appeared before him as a tempter in every shape. Thomas the First, ex-Prior of Durham, dwelt on the island for about two years, while Bartholomew was there; but so holy had been his life, that Bartholomew saw the devil sitting in a corner, lamenting that the dying man had no sin! Such were the popular legends of the period! The last of the hermits was Thomas de Melsonby, Prior of Durham, who, in oppo-

sition to the wishes of King Henry III., was elected Bishop of Durham by the monks; and although he resigned his pretensions to the see, yet, dreading the resentment of the King, he took refuge in the Farne in A.D. 1244, where he spent the remaining two years of his life in austerities and devotion. He was interred among the bishops at Durham, and miracles are said to have been wrought before his tomb.

Not long after this event, the Convent of Durham established a monastic house at Farne, to which two monks were appointed, one the Master, and the other the Associate. The name was changed from "The Hermitage" to "The House of Farne"; and the House existed from A.D. 1255 till the dissolution of monastic bodies by Henry VIII. in 1536. The taste of the middle age was strongly favourable to monastic bodies, and hence the House of Farne was, from an early period, amply endowed by various individuals. These endowments may be succinctly stated, as giving interesting local illustrations of the character of the period.

Eustace de Vesci, Lord of Alnwick, gave seven horse-loads of wheat yearly, of Alnwick measure, from the manor of Swinhoe; Sir William de Scremereston gave two bolls of wheat yearly from Scremereston; Simon de Lucre gave liberty to dig peats in the peat-moss at Lucker, and five roods of land for building purpose at South Charlton, and pasturage there for six cows with their followers up to the age of three years, for two oxen, one horse, and forty sheep with their followers, from Christmas to Michaelmas; Sir James de Howburn, Knt., gave leave to dig yearly forty cart-loads of peats in his great Peatery at Howburn, called Mosse; Sir Henry de Ditchend gave leave for forty cart-loads of peat, from the "Michelmos" of the Lord of Houburn, over the great Moor of Dichend; Rob. fitz Goldewyne and others gave houses and an acre of land in Bamborough; Bertram, Prior of Durham, assigned the corn-tithe of Aldcambus; John Fitz John Vecunte de Stanphord gave an acre of meadow in Newton-by-the-Sea; Walter Corbet gave twelve pence for ever from the mill in Newton in Glendale; Philip Bishop of Durham gave two quarters of wheat for ever, from the manor of Fenwick; Robert de Neville, Lord of Raby, gave an annual rent of twenty shillings from the manor of Raby; the Mayor and Corporation of Newcastle gave yearly ten quarters of wheat and two casks of wine out of the farm of the town; William King, of Scotland, gave half a chalders of wheat from the mill at Berwick; and King Henry III. in A.D. 1257 granted a plot of ground near his mill of Brokesmouth, now called Monkshouse*.

* Fuller accounts of these grants are in Hutchinson's 'History of Northumberland,' and Rayne's 'North Durham.'

Few of these endowments were in money ; but, consisting of food, wine, fuel, pasturage, land and houses, they indicate the little advance which commerce had made in the twelfth century. From the great quantity of peat given, it would appear that it was the common fuel at this period ; but the accounts of the House show that as early as the fourteenth century peat had been superseded by coal in the monastery.

The House of Farne was subordinate to the Convent of Durham, and hence an account of its receipts and expenditure was yearly sent to Durham, where the rolls from the year A.D. 1357 till A.D. 1537 have been preserved. Lengthened extracts from them have been printed in Mr. Rayne's excellent History of North Durham ; and they furnish materials for some interesting illustrations of the character and history of the little fraternity of Benedictine monks, who for 300 years enjoyed the solitude of the Farne.

Usually there were but two monks on the island, with one or two servants ; occasionally there was but one, and, for a short time, there was a third monk, but the additional burden for his support was borne by the Master of Jarrow, who in A.D. 1513 paid £5 for "the exhibition of a third associate."

In A.D. 1357, when the accounts commence, the revenue of the House was £34 18s. 8½*d.*, and the expenditure £34 18s. 7½*d.* This was no small income, for, judging from the price of labour at this period, it would be equivalent to about £500 at the present time ; and when to this are added the endowments in kind, the House must be regarded as wealthy. The ordinary revenues were increased by gifts from the pious. Considerable sums, as has been stated, were received for rebuilding the chapels : £12 7s. 10*d.* were given by divers persons in A.D. 1362, "to be partakers of the prayers offered up at Farne ;" and a box to receive donations at St. Cuthbert's Chapel yielded 10s. in the year A.D. 1486. The produce of the islands themselves and of the sea around them further augmented the income of the House : the herbage of the Farne yielded 5s. in A.D. 1360, and for the produce of the outer islands, 3s. were received in A.D. 1376. A barrel of oil was sold in A.D. 1337 for 26s. 8*d.* ; and in A.D. 1360 the large sum of 58s. 6*d.* was realized by the sale of fish and oil, the "oyl" having been derived from the "celys" (seals) and porpoises caught by the monks. The right of pasturage at South Charlton appears to have been turned to advantage, for besides there being an ample supply of beef and mutton for "the House," cattle were frequently sold ; in A.D. 1361, a cow brought 6s., a heifer 5s., and in A.D. 1351, a bull 7s. The storms which rage with violence around these islands paid their tribute to the monks : in A.D. 1357, 40s. were borrowed on credit

of a wreck not broken up, and the account in A.D. 1361 is swelled by £4 5s. 7d. for a "shipwreck." The disturbed state of the kingdom at particular periods, and the repeated ravages of the Scots in Northumberland, caused, however, the endowments to be irregularly paid, and not unfrequently the revenue fell short of £20.

These rolls afford interesting information as to the price of various articles and of labour in the middle ages. An acre of meadow land at Newton was, in A.D. 1361, let for 3s., and an acre of arable land at Bamborough for 1s. 8d.; in A.D. 1430, the rent of a tenement at Bamborough in "Raton Raw" was 3s. 4d.; and in A.D. 1536, a tenement and two acres of land at Bamborough produced only 5s. A fat pig in A.D. 1360 sold for 6s.; a horse for the mill, in A.D. 1420, cost 13s. 4d.; two ox-hides, in A.D. 1361, sold for 15d.; for a new boat and oars, in A.D. 1423, there were paid 44s. 4d.; and a horologium (clock), in A.D. 1371, cost 45s. For four chalders of coals, 13s. 4d. were paid in A.D. 1439; and in A.D. 1455, "eight chald of coals won on the sea-coast at Sunderland with carriage," cost only 6s. 8d. Wheat in A.D. 1453 was valued at 6s. 3d. per quarter. Wages, however, during the 14th and 15th centuries were low: "sclaters" and carpenters received 3d. and 4d., and masons 4d. and 6d. per day.

These rolls further show how the monks lived, what sources of information they enjoyed, how they occupied their time, and what dangers they were exposed to and sufferings they endured.

Their food consisted of beef, mutton, bacon, poultry, souce or tripe, salmon, codlings, red herrings, and lobsters. Bread was made of wheat and maslin; oatmeal was used, probably to make "crowdy" and "hasty-pudding;" their vegetables were split beans and peas; butter was also an article of diet; and for condiments they had saffron, salt, mustard and pepper, the latter being ground by themselves in pepper and mustard "querns." Porpoises and the sea birds, though now despised even by vulgar tastes, were used as food, and even regarded as delicacies, for they were sent from the islands to Durham to add to the pleasures of the table on feast-days: at the feast of St. Andrew's in Advent a "porpais" was sent, and in another year six dozen "wyelfoyle" (wildfowl) and four puffins. For drink, the monks had wine, which they would receive annually from the corporation of Newcastle, and ale which they brewed in considerable quantities both from the malt of barley and oats. The brew-house was amply supplied with brewing utensils, and in A.D. 1370 there were laid up in the granary $12\frac{1}{2}$ quarters of barley malt and 12 quarters of malt oats. Their household utensils were chiefly of wood, with a few of tin, lead, brass, and horn. Earthenware is not mentioned; and of glass there were only

"two pots," which, however, were stolen in A.D. 1430. One cup they had which must have been a valued relic—a cup of "mur" or maple hooped with silver and gold, reported to have belonged to St. Cuthbert. The monks had "trensors, horn spungs, zettlings, zett pans, frying pannes, kettills, kytts," which are still household words in Northumbrian cottages. They lived well, and their extensive culinary apparatus proves that cooking formed no unimportant part of the business of life. Coals, from an early period, had been probably their principal fuel, for though they had a right for peats both from "Howburne" and "Dich-end," there is no evidence of their having exercised it; but in the first account there is an entry for 20 chaldrons of coals; these are stated in other entries to have been procured from North Sunderland.

Amply provided for, and with abundance of leisure, it might be expected, that these monks, who had generally been educated in the cloisters of Durham, would have devoted themselves to the instruction of the rude inhabitants of the county, or by study have left a precious legacy of thought to after-times. So far, however, as the rolls show, they taught no schools nor gave any public instruction; their prayers were sought, paid for, and given. They however occasionally acted as physicians, for in A.D. 1406, one of the masters is ordered, "that when any one wants your medical assistance, let him send you a horse to ride upon." The library of the Farne House furnishes a curious and instructive catalogue; it may be taken as a type of that of a provincial monastery; it numbered more volumes than the wealthier and larger Priory of Lindisfarne. In A.D. 1394, when it was largest, it contained the following books:—two missals, one of them in decay; a gradal*; two antiphonars†; an ordinal‡; two portifors§; a psalter; a legend of the saints; the book of sentences; a book of decretals; "a good book containing many tracts, procured by D. James Crank;" the life of St. Bartholomew of Farne; a book containing thirteen tracts in thirteen quires; the rule of St. Augustine; another book of tracts; meditations and prayers; a book containing the miracles of St. Cuthbert; two books of services for the dead, with a treatise on the articles of faith; a book of miracles of St. Mary, the purgatory of St. Patrick and other notable matters, by Robert de Bra. What a miserable library for a learned community! It does not contain

* Book containing parts of the mass which were chanted responsively by the choir.

† Book containing services, one verse of which was chanted by the priest, and another by the choir.

‡ Book of Common Prayer.

§ Small portable copy of the Ordinal.

a copy of the Bible—not one classical author, not one historical or scientific work! The few volumes which may be found on the shelf of many a cottage in Northumberland teach more knowledge than this monastic library, and yet it dwindled down in A.D. 1513 to eight books! During the course of nine centuries, Farneland with its hermits and monks produced only one literary work; it is entitled, “*Meditationes cujusdam apud Farneland quondam Solatarii.*” Mr. Hutchinson states that they were written by Bartholomew; but Mr. Rayne, who has examined the manuscript, which is in the Durham Library, says, that the handwriting seems about A.D. 1350 or 1360, or perhaps somewhat later, which is about two centuries subsequent to the time of Bartholomew. The subjects discussed are characteristic of the age, being on Angels, on the Holy Virgin Mary, on the blessed John the Baptist, on the blessed Cuthbert, and similar topics. Some extracts from these meditations have been printed by Mr. Rayne; they indicate a pious but superstitious mind, they are feeble and trite, and are altogether deficient in the subtlety and metaphysical acumen for which the schoolmen were distinguished. One specimen will be sufficient: the monk addressing the angel appointed to take charge of him, says, “How often, when I have been cutting wood with a hatchet or an axe, should I have mutilated my members, hadst thou not turned away the blow, and warded off the danger! How often, when I would have slept beyond the hour, hast thou awakened me!” The lights, which now shed their guiding rays over the waters from the rocky islets of the Farne, contrast in brilliancy and usefulness with the feeble glimmerings which have proceeded from the intellects of the monks, and we need not repine because so few of their meditations have reached our own time.

The occupations of the monks appear to have been more mechanical than intellectual. They were agriculturists and carefully cultivated the soil, and here the contrast with modern treatment is in their favour. There is now no land in cultivation on the islands (excepting small gardens), and neither cattle nor sheep are maintained; but in A.D. 1369 three acres were sown with barley, and of the produce “grown on the croft within the island,” 3 quarters and 3 bushels were sold; and there were also “in the island two horses, two bulls, three cows, two heifers, and a pig;” in the year A.D. 1513, there were fourteen sheep and six lambs. The monks possessed ploughs, harrows, “cultres,” “grapes,” “sheringhucks,” and other agricultural implements. The larger repairs and new buildings were done by artificers from the mainland; but the monks seem to have been, to a considerable extent, their own masons, joiners, slaters and millers, for we find they had constantly on the island quarrying tools,

joiner's tools, mells, spades, shovells, "milne stones," and "pykkes" for cutting the millstones; they also kept a stock of "nayls," "stanbrodys," "Estland bords," &c. Fishing, however, was one of their principal employments; they usually had a "cobyll" and a boat, with "grete lynes 50 fadoms long," "smallynes," "lopster nets," "grethukys," and other fishing tackle; and that the monks were not unskilful fishers is manifest from the large sums received for fish, which they sold after their own table had been supplied.

Seclusion from the world is no security against temptation and sin. Bad monks appeared from time to time even on the seagirt Farne. John de Rypon was dismissed in A.D. 1407, for he had by his extravagance brought an excessive debt on the House; he had kept horses and strolled about the country, being absent from the island without leave from the Prior, frequenting eatings and drinkings upon the main. Another master was dismissed in A.D. 1443: he had pawned the chapel's best chalice and best set of robes and divers spoons, and had even been so criminal as to offer them for sale; he also associated with ribalds travelling on foot over the country in garments rent, torn, and covered with mud. John Kirke, in A.D. 1461, was severely rebuked for several offences, but especially for "haunting a womanse house over oft a for noon." In A.D. 1485, the monks were charged with being disorderly; but the sins laid to their door, however much opposed to monastic rule, do not seriously violate the Decalogue: one is blamed for wearing daily "a sark of linen cloth," for going to the land without leave from the master, for resorting to places among suspected persons, and for departing from the fellowship of the master.

While seclusion from the world was no security from temptation to evil, it was but a slight protection in troubled times against lawless aggression. For many centuries before the Union of England and Scotland, the borders were the battlefield of the two nations; raids were frequently made, during which property was destroyed or stolen, and human life sacrificed. The House of Farne suffered sadly in these evil days. In A.D. 1376, the monks were driven from the island and took refuge at Bamborough, where they incurred expenses during their exile "on account of the Scots" to the amount of 34*s.* 4*d.*; they found it expedient to purchase a "surety" from the Earl of Douglas, for which they paid 2*s.* 6*d.* A heavier calamity befell them in A.D. 1380, when "things" to the value of 33*s.* 8*d.* were stolen by the Scots, and 74*s.* 9*d.* were expended upon the land for bread and ale and for the master and his servants. Few and short were the intervals of peace and rest for the poor monks: in A.D. 1413 they again fled to the land on account of the war,

and expended in consequence 70s. 3d.; the fear of the Scots in A.D. 1418 drove them to the land, and cost them 20s.; and in the following year, "on account of Scots and thieves," they spent 15s. on the land: again they found it necessary to purchase a protection from the Earl of Dunbar for 3s. 4d. The expenses of the House were in A.D. 1430 much more than the income, for their property had been stolen by "Scots and thieves;" and in A.D. 1436 one of the servants was taken by the Scots, and ransomed at the cost of £4. Two years after this the island was deserted by the monks, because the town of Newcastle refused to pay the pension due by the town, and because of the defalcation of other revenues, owing to the troubled state of Northumberland. Redress, however, was obtained from Newcastle, 1s. 6d. having been presented to the chamberlains to keep them, as is stated, "in humour," and the monks once more return to their island home. Most rapacious were the Scots—the little monastic library had no sanctity in their eyes; for about A.D. 1449, they robbed the House of six volumes, and it proves that at this period books had a high money value, when 53s. 4d. were paid for the restoration of these literary treasures. War broke out again in A.D. 1456 between the English and Scots; but the heaviest blow fell upon the House in A.D. 1464, when goods to the value of £57 were taken from the Farne by "Scottish thieves." These records present a fearful picture of the times: when a monastic house, usually held sacred, in a remote situation and of difficult access, was so repeatedly plundered, we may be assured that the suffering and wretchedness of the border population must have been awfully severe during this period of lawless burnings, harryings and murder.

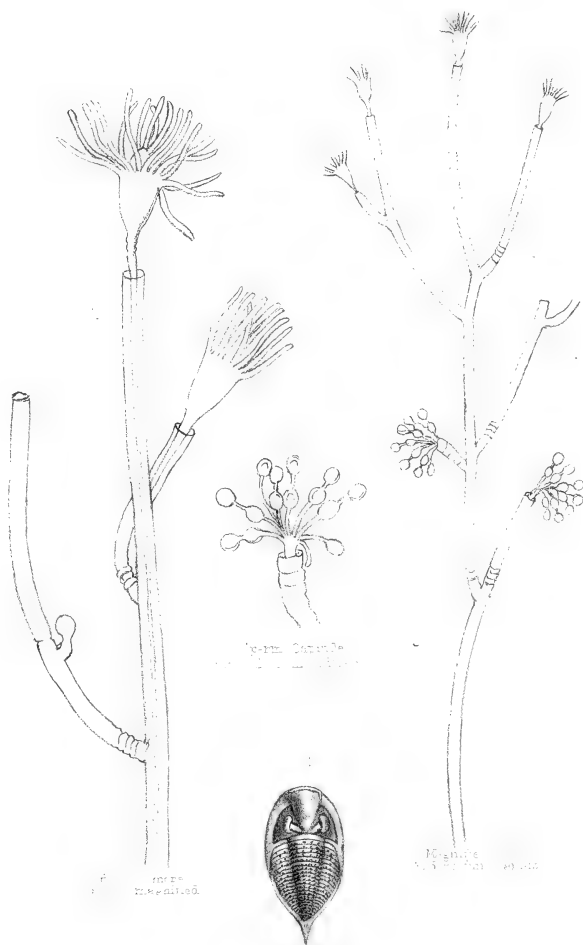
The last account, which is for the year A.D. 1537, remains unbalanced; the act passed in the 27th year of the reign of Henry the Eighth having dissolved the monastery and driven away the monks from the island; and though no act is recorded to dignify their names, and few which benefited the age in which they flourished, yet posterity may feel grateful to them for leaving behind accounts at once amusing and instructive.

Zoological Notices. By R. EMBLETON, President.

[With a Plate.]

EUDENDRIUM CAPILLARE, n. s., Alder. Plate I. figs. 1, 2, 3.

Polypidom minute, very slender, thread-like, a little branched, transparent, pale horn-coloured, smooth excepting two or three faint rings near the origin of each branch. *Polypes* terminal on the upper branches, vase- or pear-shaped, with a single row of





eighteen or twenty long, slender tentacles: reproductive capsules on separate short branches, near the lower part of the stem, on clustered or verticillate pedicles, two or three capsules in linear series on each pedicle. Height $\frac{1}{2}$ inch.

Parasitical on *Antennularia ramosa*. Embleton Bay, R. Embleton.

Pecten septem-radiatus. New to Berwickshire, and the second specimen that has been taken on the Northumberland coast.

A beautiful specimen of the Gilt Head, *Pagellus Centrodontus*, was sent to me by the Rev. J. D. Clark: it was caught in Berwick Bay. It is a rare fish on this coast, and is the second specimen I have seen.

A specimen of that very rare fish, *Torpedo vulgaris*, or Electric Ray, was taken in Embleton Bay in the month of June last.

An Account of a Font from Coldingham Abbey.

By CHARLES STUART, M.D.

NEARLY a hundred years ago there lived in the village of Coldingham a builder named William Spouse. The father of Mr. John Fish (the present tenant at Hutton Barns in Berwickshire) married the only daughter of the said William Spouse, who inherited her father's property at his death. Among other things, she came into possession of the Font belonging to the Abbey, which was found at the bottom of a heap of rubbish, bought by her father there. After her marriage the font was removed to Ayton, the residence of her husband; and when they removed to Nancefield, in Hutton parish, thither the font went also. Twenty-five years ago Mr. J. Fish became tenant at Hutton Barns; but the font was left behind and forgotten at Nancefield. About four months ago, however, in the course of a conversation with Mr. W. Fish, brother to Mr. John, anent the Abbey of Coldingham and its restoration, he informed me that "he once had the stone the monks kept the holy water in," and added, "that I could not guess the use the stone was put to." I could not guess, but was not a little astonished to hear that it was used as a pig's feeding-trough. He farther stated, from its size and solidity, he had no doubt it was still in existence. He went on to say that at any rate it was all safe when they left Nancefield twenty-five years ago, and that he would make over his right to it to me, if it could be found. An inquiry and search were forthwith instituted at Nancefield, and the object of our search discovered in one of the cattle courts. Twenty-five years' possession, however, constituted a pretty fair title to ownership with

the present tenant there; but he kindly gave over the font to me, upon promise of a substantial pig's-trough being sent in exchange. From the continued rubbing it has endured from the snouts of the porcine genus, who have fed out of it, the sides are a good deal worn, and there is also a mutilation, where it had evidently been built into the wall of the Abbey, and had forcibly been broken off, from the effects of some heavy mass falling upon it—it might be when the Abbey was cannonaded by Oliver Cromwell—otherwise it is in wonderful condition, considering its age. It is composed of a close-grained freestone, such as is seen at present at the church of Coldingham. It is so massive that it is almost impossible for one person to lift it, and the carving on the outside is a good example of the style of the period in which it was executed.

Thinking that it might interest the Members of the Club—an account of the adventures this stone has gone through—I have ventured to bring it under their notice, and trust they will pardon the imperfect description I have produced.

Chirnside, 27th October, 1856.

Remarks on Coldingham Priory.

By ROBERT HOOD, M.D., Edinburgh.

[With a Plate.]

THE antiquity of Coldingham is ascertained by its being marked in Ptolemy's map under the title of 'Colonia,' being the Latinized name of the Cole; which latter word is frequently met with as the name of persons and places in Britain, and appears to be a word used by the early inhabitants of this island. Some places in Denmark still retain the name of Colding, *ding* or *ing* in the Scandinavian signifying 'vale,' which leads to the suspicion that this district was early peopled by the inhabitants of the opposite continent. The rivulet that runs past Coldingham to the sea is named Cole, and a mill near to its mouth is still called the Cole Mill, and a marshy piece of ground near by, Colebogue, Colebog. By this view, the Saxon 'ham,' or village, will be, the town in the vale of the Cole.

Christianity must have been very early introduced into this district, as, when St. Ebb drifted ashore in her 'lone bark' at the headland called, in the Saxon period, Coldbury Head, she was received by the members of a religious establishment already fixed there, but for how long before is unknown. St. Ebb's advent is considered to have taken place in A.D. 640, leaving thus several centuries to intervene between this and the Roman notice, so that some of the emissaries of St. Palladius may have



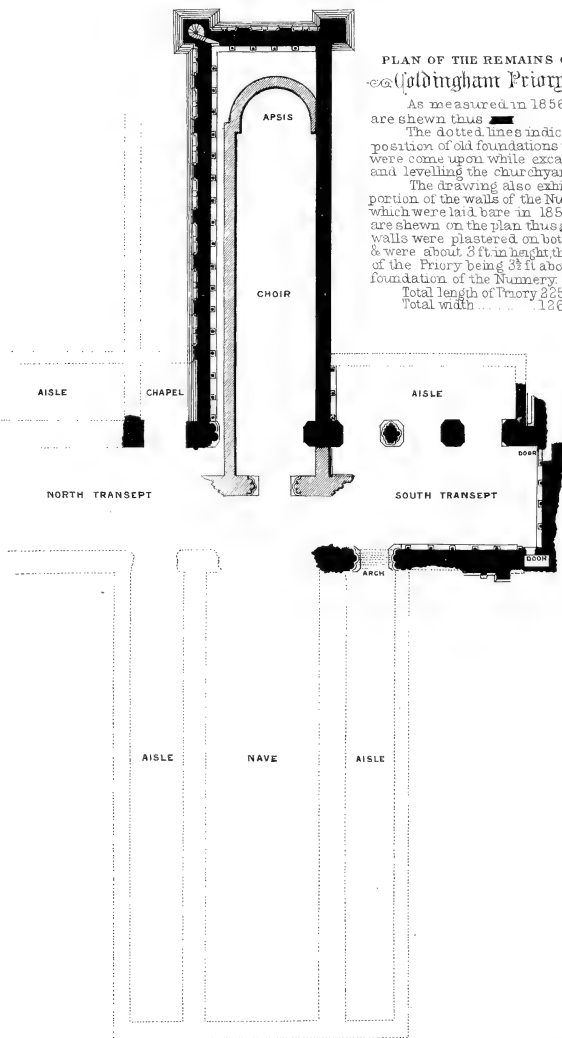
PLAN OF THE REMAINS OF
Goldingham Priory

As measured in 1856, and are shewn thus

The dotted lines indicate the position of old foundations which were come upon while excavating and levelling the churchyard.

The drawing also exhibits a portion of the walls of the Nunnery which were laid bare in 1855 and are shewn on the plan thus the walls were plastered on both sides & were about 3 ft in height, the floor of the Priory being 3 ft above the foundation of the Nunnery.

Total length of Priory 225 ft.
Total width 126



Scale of 10 5 0 10 20 30 40 50 60 70 80 90 100 feet

laboured here, and been successful in converting the Pagans to the Christian worship. But it might be at a later period, by St. Ninian, or even still later, by St. Colome in A.D. 570.

No mention is made of nuns existing there previous to the arrival of St. Ebb at Coldbury Head, now called St. Ebb's Head, but, from the undoubted authority of Bede, she was installed superintendent over the monastery, which then, at least, must have been a double one. She died in A.D. 679, and soon after her death the edifice was accidentally consumed by fire. The foundation, strong and massy, of a building still remains on the verge of a precipice that overhangs the ocean, and on a hill at a little distance the foundations of a church are still discernible, surrounded with a burying-ground, which was used within the last hundred years for interments.

All doubt concerning the site of the next building is set aside by the discovery of its ruins within the present church, the foundations of the chancel having been come upon during the recent excavations that have taken place in executing the present renovations. They consist of a wall, finely stuccoed inside and out, which is shown in the Plan (Pl. III.), running parallel with, and within, the north, and under the south wall. The east end is circular, and the west opened with an arch, probably in connexion with a nave, all traces of which, however, are obliterated. The foundations of the pillars which had supported the arch were exposed, but, from their low position, as well as the foundations, had to be covered up again.

This building stood till about A.D. 870, when it was burned by the Danes, and the nuns butchered with savage cruelty ; but as no mention is made of monks, it seems that this building had contained nuns only, seeing that, if there had been monks, they would not have escaped the barbarity of the invaders. It is almost needless to conjecture what the structure of the nunnery had been, as we have nothing but the foundations of the body of the chancel to guide us ; but from these we ascertain that it had been well and solidly built of stone and lime, and not of wood, and, from the walls being plastered outside, that the body of the chancel had had aisles.

A little more than two hundred years after the ravage of the Danes, A.D. 1098, King Edgar founded the Priory of Coldingham, and richly endowed it. He procured a detachment of Benedictine monks from Durham to occupy it, and dedicated the building to the three saints, Cuthbert, Mary, and Ebb. Succeeding kings and nobles bequeathed also liberally, so that the Prior drew rents from the greater part of Berwickshire, then called Coldinghamshire. Mr. Carr, in his very pains-taking History, states the name of the first Prior he could find on

record, to be Symon; A.D. 1141, and gives the succeeding list until the year 1622.

Whether the monastery anterior to this was double or not may continue doubtful, but Edgar's erection contained monks only. The chief remains of Edgar's magnificent structure are the north and east walls of what is stated to have been the choir of the church, built, as has been before stated, over the ruins of the chancel of the former nunnery;—the south transept, to the height of about 8 feet, which last the Heritors have recently wholly disinterred, having been filled up with rubbish; it has a circular arch at the upper part, which communicated with the aisle of the nave;—the foundations of two massy clustered pillars, also recently disinterred, which had supported the arches situated between the body of the transept and its east aisle. To the south, and parallel with the present church, and running nearly in a line with the south end of the transept, was an apparently shapeless massy wall, which traditionally went by the name of Edgar's Walls, or Palace. This the Heritors have also disinterred, to the depth of about 10 feet, and have been rewarded with the discovery of the Refectory. A noble dining-hall it must have been, reaching nearly the whole length of the present church. The under portions of the east and north walls are all that remain, and these show portions of the pillars from which the arches that supported the roof had sprung. At its east end had been the kitchen; and the kneading-trough and oven have been uncovered, as well as the ash-pit, containing the ashes, with small pieces of wood charcoal. There is also a portion of massy wall to the east of the church, which has been preserved from being used as a quarry, like many other portions of the ruins, by being constituted part of a hearse-house, which last has been removed. The north and east walls of the choir were, fortunately, in a state of good preservation, and, with the recent renovations, which do very great credit to the architect, show how magnificent the whole fabric must have been.

Mr. William Gray, whom the Heritors employed as architect, has very kindly furnished me with the accompanying Plan (Pl. III.), which he was enabled to trace in the recent excavations that have been executed. The north transept is incomplete, on account of its having stretched into where many interments take place, but a massy tower is stated to have existed at the north-west angle, which had been frequently fortified, and stood sieges. This, Cromwell, on his invasion of Scotland in 1648, knocked down with his artillery, and at the same time blew up the church with gunpowder, the north and east walls of the choir being saved alone from destruction. Although Mr. Gray has not traced it

on his Plan, an aisle similar to that on the north of the choir had existed on the south side, as I recollect its foundation having been dug out many years ago, for stones to be used for some purpose or other. The original south wall would most likely be arched similar to the side aisle communicating with the transept. Home, the then proprietor of Coldinghamlaw, rebuilt the front wall, and a gable and steeple were added to the east end.

Such is the church Grose, in his 'Antiquities,' pictures. Early in this century the Heritors found it necessary to remove the roof, which was flat and covered with lead, and to substitute a raised slate one instead; but, several years anterior to this, they, for the accommodation of the parishioners, had to erect a gallery along the end and north walls, which very much hid the fine ancient structure. In this state the church remained until a year or two ago, when the Heritors applied to the Commissioners of Woods and Forests, who agreed to restore the old walls; and the Heritors have removed the galleries and re-seated the area. They have also removed the steeple and west gable, and rebuilt the last in uniformity with the north and east walls, with most extraordinary success; having also pierced the front wall with lancet-shaped windows, redressed the outside, and added a neat porch, with belfry, which altogether give the church a handsome appearance.

As is the case with all ancient buildings, the *débris* had accumulated to a great extent around the exterior walls, and this has also been removed, and the churchyard levelled. The oldest legible grave-stone dates from 1628, and there are several a few years only later; that of John Paxton is 1661. He was the lineal descendant of the De Paxtons, who, after various confiscations and restorations, finally settled at Auchencrew, where the last male heir, Robert, died, in 1722. His tombstone is still very perfect. He left two daughters, one of whom was my grandmother. But a much more ancient burying-ground is that of the Crows, although the memorial stones, if any ever existed, have all been destroyed, except that of the Netherbyres family, which is of late date. The Crow family were the original Auchencrows, and, from the name, must have been a Gaelic tribe; the meaning of *auch* being 'field,' and *en* 'of,' so that they were the Crows; or as they long spelled, and if we take the bird's own way of pronouncing 'Craw,' the Crows of Crawsfield. Nesbit, in his 'Heraldry,' states, that they were an ancient family, and figures three crows on their shield. Their burial-place seems to have been in the south transept, near to the nave, and below the arch, which has been noticed as still standing. My brother, William Hood, the proprietor of Sunnyside,

has a charter of John de Auchencraw, and they retained property there in the male line as late as 1630, when one of my ancestors married a descendant of the last of them. Being so connected, has given me an opportunity of recording the above.

By the excavations of the south transept three slabs were exposed, with a sword cut on each, one of them with two, and also the figure of a cock, but no date on any of them. It has been conjectured that this figure relates to the Cockburns, a notable family once, in the county; and what helps to confirm it is, that the family of Turnbull, who purchased Houndwood about the middle of the last century, took the ruins above the place for their burying-ground. This Dr. Turnbull who purchased Houndwood was the great-grandfather of Mrs. Capt. Coulson, and a descendant of the Cockburns. The Houndwood family have always buried in this place. Near the same place was also found a very perfect stone sarcophagus, cut to the figure of the body. A broken vase, cut out of a very hard Silurian rock, similar to what is found in the neighbourhood, has also been dug out, with many various pieces of sculpture, all of which are carefully preserved. With regard to the structure of the ancient north wall, Mr. Billings, in his 'Ecclesiastical Antiquities,' has given a very fine view; but he has incorrectly represented the lower pillars to be supported on gorbals, whereas the pillars of the original structure were entire, as became evident when the foundation was laid bare.

Notices of Berwickshire Plants. By JAMES HARDY.

1. *Orobis sylvaticus*.

In Monynut Wood, near the foot-path leading to Abbey St. Bathans. The station on the Eye is now under cultivation.

2. *Peplis portula*.

Bog at the west end of Old-cambus Dean; in the pond at Dulaw and its vicinity.

3. *Cnicus heterophyllus*.

In the boggy wood on the Whiteadder below Edin's Hold.

4. *Lithospermum maritimum*.

An observation that I made this season will account for the occasional disappearance of this plant from its old sites. On the 8th of August I found it rising in a new station, on the beach at Greenheugh, the little bay west from St. Helen's Church; but I am sorry to add that, on the 17th of August, and for some time afterwards, a north-east wind, accompanied by a succession of high tides, moved the loose shingle, and

buried the whole of my seedlings. Shortly after, I went to the locality to the east of Redheugh, where it once abounded, but I could not perceive a single plant; the beach having undergone great alterations since my previous visits. A number of plants, however, have sprung up at the mouth of the Pease Burn; and I observed it also further to the west at the Ewelairs, where it formerly grew, but where it had not been seen for many years.

5. *Galeopsis Ladanum*.

On an uncultivated rocky and gravelly spot in a field near St. Helen's Church, apparently indigenous.

6. *Stachys arvensis*.

Banks of the Monynut, below Trefountain.

7. *Clinopodium vulgare*.

On an uncultivated bushy spot, called the Oak Brae, at Old-cambus; along with *Astragalus glycyphyllos*.

8. *Primula vulgaris*.

It is mentioned in the 'Flora of the Eastern Borders,' p. 165, that humble-bees pay no attention to this plant; but this is a mistake, for they often frequent its flowers; and hence it has obtained the notice of the poets:—

“He shal ben lyk the lytel bee,
That seketh the blosme on the tre,
And souketh on the prumorole.”

MS. Addit. 11307. f. 67 (Brit. Mus.).

“And lowly primrose opes unseen
Her virgin bosom to the bee.”

HOGG's *Queen's Wake*.

The hive-bee occasionally visits the Polyanthus for pollen, but I never observed it on the Primrose.

9. *Polygonum amphibium*.

On the Monynut I obtained, within a reddish package formed by the revolute edge of the leaf, the larva of *Cecidomyia* (*Tipula*) *Persicariæ* of Linnæus, not before observed as British. Winternertz has described the female of the perfect insect in his elaborate “*Monographie der Gallmucken*,” in the ‘*Linnæa Entomologica*,’ vol. viii. p. 217. The pretty beetle, *Chrysomela Raphani*, both in the larva and perfect state frequents this plant, in that vicinity.

10. *Listera ovata*.

Penmanshiel Wood, rare; in the bog between the Blacklaws; Howpark Wood; Coldingham Moor adjoining the Press plantations.

11. *Listera nidus-avis*.

One plant in Red Clues Cleugh, where I have also seen the persistent withered spikes.

12. *Orchis viridis*.

One plant on the sea-banks behind Redheugh Coast-Guard Houses.

13. *Glyceria rigida*.

In one spot on the braes at Linhead, below the railway embankment, on a red gritty soil, similar to that in which *Clinopodium vulgare* and *Galeopsis Ladanum* grow.

14. *Riccia glauca*.

In the Tower Dean, scarce; also near the waterfall at the head of Dulaw Dean.

15. *Lemania fluviatilis*.

In Whare-burn, to the east of Shannabank.

16. *Chroolepus lichenicolus*.

On lichens on shady rocks near the linn at Reedy-burn; and near The Retreat.

MISCELLANEA. By JAMES HARDY.

Occurrence of the Twite (Fringilla montium) in Berwickshire.

A flock of stranger birds, during the spring of 1856, frequented the higher part of Penmanshiel Wood, called Aikieside, attaching themselves to the Scotch pine, on account of the cones, from which they extracted the seeds. I expected to have procured a specimen, but a Hawk made off with the individual that was shot for the purpose; and I only obtained the bill, legs, and feathers; but these enabled me to determine that this rare visitant was the Twite, or Mountain Linnet. They left about the 3rd of June. For some time they were associated with the lesser Redpole. This bird also is seldom seen here; but this season it appeared in a large flock, during some very severe weather about December 8, 1855, along the banks of the North British Railway, among clumps of withered nettles. They soon disappeared, however, and it was not till the spring was pretty well advanced that they were observed in the company of their congener.

On Granivorous Geodephaga.

In the Proceedings of the Club, vol. iii. p. 123, I have recorded the habits of some Beetles, usually considered as wholly carnivorous, but which were observed to feed on the seeds of plants. I have repeatedly verified the observations then made on the *Amaræ*;

indeed, they may be seen feeding on the grasses or chickweed, near wall-sides, on any fine day in summer. I re-introduce the subject to state, that on the 22nd September, 1856, I met with *Omasseus melanarius* and *Calathus cisteloides*, two of the insects previously mentioned, the former as an ascertained, the latter as a probable seed-feeder, devouring the grains of oats. Happening to pass through an oat-field where some of the heads had fallen across the foot-path and been trodden down, I saw first an *Omasseus* and then a *Calathus* eagerly at work gnawing the seeds still attached to the panicles; the first at a ripe grain, the other at one which was greenish and soft. Both had torn the chaff to get at the grain.

Additions to Berwickshire Mollusca.

CONOVULUS BIDENTATUS and RISSOA CINGILLUS occur together, in a living state, under stones, mostly of red sandstone, behind St. Helen's Church, near the high-water mark of ordinary tides, and in about the same situations as those which *Aëpys marinus* and *Micralymma marinum* prefer. I find *Helix pulchella*, which is accounted rare in this district, pretty frequent among short herbage close on the seaside at Greenheugh, and on the Bents near the mouth of the Pease Burn.

On some Silver Coins found at Blackburn, in the Parish of Cockburnspath. By JAMES HARDY.

As the local antiquities of the Border district form a prominent department of the Club's scheme, I beg to transmit a notice of the discovery of a number of Coins in this vicinity, of some historical interest. These coins were found on the farm of Blackburn, in the parish of Cockburnspath, in the end of April and the beginning of May 1856, by some labourers engaged in field-work. They were obtained in a portion of a field that had not been cultivated till recently, owing to the quantity of stones with which it was encumbered. They were scattered about, but had been originally enclosed in an earthenware vessel, of which several fragments were observed. Altogether, about 200 coins were picked up. Of these I had the opportunity of inspecting two sets, said to be types of the series, the one of 17 selected from 100; the other of 12. They are all silver pieces—shillings I imagine, although some of them are exceedingly light and thin—of the period of the struggle for Scottish independence in the days of Wallace or Bruce. The coins have no dates, but their age may in some measure be inferred, from two coins of

Alexander III., not much impaired, being of the number. As being the oldest, these claim first to be noticed. The obverse presents a crowned profile of the king—a grave and dignified personage—with the sceptre, which is tipped with a fleur-de-lis in front. The legend is + ALEXANDER DEI GRA. On the reverse is a rectangular cross with a star in each of the four angles: Leg. REX SCOTORVM +. The cross is so deeply impressed, that the piece, if bent, would snap in two; whence the usage of such coins as troth-pledges. The workmanship of these coins surpasses most of the English pieces in the collection. These, for we have no guide in the inscriptions, from their association with the Scottish coins, appear to have belonged to Edward I. They are pretty uniform in type; none of them, however, are from the same dye, and hence the features show considerable diversity. The obverse presents a full face of the king; the crown is open like that of the Scottish king. There is no sceptre. The general inscription is + EDWARD R ANGL' DNS HYB. [Edward King of England, lord of Ireland]; sometimes only EDW or EDWA: in one instance EDVA; and HB occurs for HYB. On the reverse, a cross divides the disc into four compartments, in each of which are three pellets in a triangle. As most of them have issued from the Mint in the Tower of London, they are inscribed CIVITAS LONDON. At this period many of the principal towns and boroughs in England had the privilege of coinage, subordinate to the Mint in the Tower. Of the provincial pieces, there are several examples in the collection, as denoted by the inscriptions; the coins being in other respects similar to those of the metropolis. Thus we have CIVITAS CANTOR, *i.e.* Canterbury, (two of the Canterbury coins look like the essays of an apprentice): CIVITAS EBORACI, *i.e.* York: CIVITAS DVNELM, *i.e.* Durham (very rudely lettered): VILLA BRISTOLLIE, *i.e.* Bristol: VILLA SCI EDMVNDI, *i.e.* Bury St. Edmunds. One may be a baronial coin, or that of a bishop, but like some of the others it has been clipped, which renders part of the inscription doubtful. Like the others it has the king's effigy, and the cross and pellets. The obverse inscription is G. DOMINVS DE: LINI. Perhaps the last I may be a rubbed D; and if so, it may be intended for Lincoln (*Lindum*). Reverse: MONETA SCR EN...; the last letter is effaced. "Moneta sacra" is the classical phrase for coined money. Two of the coins are Irish, and are superior both in lettering and graving to the English. On the obverse is a triangle, enclosing the face of the king, which is similar in appearance to that on the English coins. The triangle divides the margin into three compartments. The first contains + EDWR.;

the second A N G L' D; and the third N S̄ H Y B'. On the reverse, encircling the cross and balls, is the legend: C I V I T A S D V B L I N I E. The only remaining coin is of Edward as Duke of Guienne. On the obverse is a half front face, of a more chivalrous bearing than the heavy German countenances on several of the English pieces: Ins. + E D W A R D R E X A N G L. On the reverse is a cross, with a minute trefoil at the termination of each arm; a coronet in each of the four compartments: Ins. D V X A Q V I T A N I E.

It is nowise remarkable to discover English coins in this part of Scotland, for in the time of Edward I. it was entirely subject to England. From the diversity and nature of the coins, however, in this collection, it is obvious that the party to whom they belonged must have had dealings with some of the armies, assembled from all parts of his extensive dominions, which Edward or some of his captains conducted into the North, to crush the remains of Scottish patriotism. In the army that fought the battle of Falkirk in 1298, there were both Irish and Gascons present; and at that period a party of Gascons garrisoned Berwick. Perhaps this was the period of acquisition; but we cannot so satisfactorily conjecture, at what particular exigency in that distracted age, such a large amount of wealth was abandoned. Another instance of a considerable number of coins of the same era being found in the district, occurred a few years ago near Cairncross. Three of these that I examined, correspond with the London type in the present collection. The concealment of such large sums of money, of the same character, at the two places, points out some crisis in the course of national events, which the owners had particular cause to dread; and this may have been the successes of the Scots in the time of Bruce, and the return of the rightful owners to the lands whence they or their fathers had been disinherited. In the Coldingham records, as published by the Surtees Society, there is preserved a roll, which supplies the information, that several forfeitures took place in the east of Berwickshire in 1298, in consequence of the proprietors taking the Scottish side at Falkirk. The vacancies thus made would most likely be occupied by Englishmen, or "Scoti Anglicati," as Fordun calls the renegades; whose only safety, when the English interests received a fatal blow, would be a precipitate retreat across the Borders.

On Roman Remains found at Adderstone, Northumberland.

By GEORGE TATE, F.G.S.

IN the month of July last, some workmen, while draining Adderstone estate, belonging to Dr. G. Wilson of Alnwick, discovered a small oak box in a peat bog, at the depth of 6 feet from the surface. Buried in this bog were also several large oak-trees, black in the wood, but sound and fit for use. The box was fastened by copper nails, but on exposure to the air the wood decayed, and there appeared twenty-two Roman copper and brass coins, a portion of horse furniture, and a scale and beam.

The coins are chiefly of the middle size, with a few of the smallest; and through the kindness of Roach Smith, Esq., the distinguished Roman archæologist, who determined those that were obscure, I am able in the following list to refer them to their respective reigns.

One brass of Hadrian, who reigned from A.D. 117 to 138: the obverse with a laureated bust; the reverse with a female figure standing.

One brass of Lucius Ælius (A.D. 135 to 138): obverse, a bust; legendL I V S C A E S...A V G; reverse, a female holding a branch and cornucopia.

One brass of Antoninus Pius (A.D. 138 to 161): obverse, a laureated bust; reverse, a female seated, with a spear in her left hand; legend,I N D V L G E N T I A A V G C O T I I I I; in the exergum, S. C.

Two coppers of Marcus Aurelius (A.D. 161 to 180).

One brass of Verus (A.D. 161 to 169): obverse, a laureated bust.

Three coppers of Faustina the Younger, wife of M. Aurelius: obverse, a bust; reverse, a female seated.

Two coppers of Commodus (A.D. 180 to 192): the more distinct of the two has on the obverse a laureated bust; legend, M C O M M O D V S F E L I X A V G B R I T; reverse, a figure helmeted, with a spear in the right hand; legend, A V G P M T R PP V I I I C O; the other has on the reverse a female seated.

One copper of Severus (A.D. 193 to 211): reverse, two small figures; legend, V I R.

One copper of Caracalla (A.D. 211 to 217); much obliterated: obverse, a laureated bust.

One small brass of Solinina, wife of Gallienus (A.D. 253 to

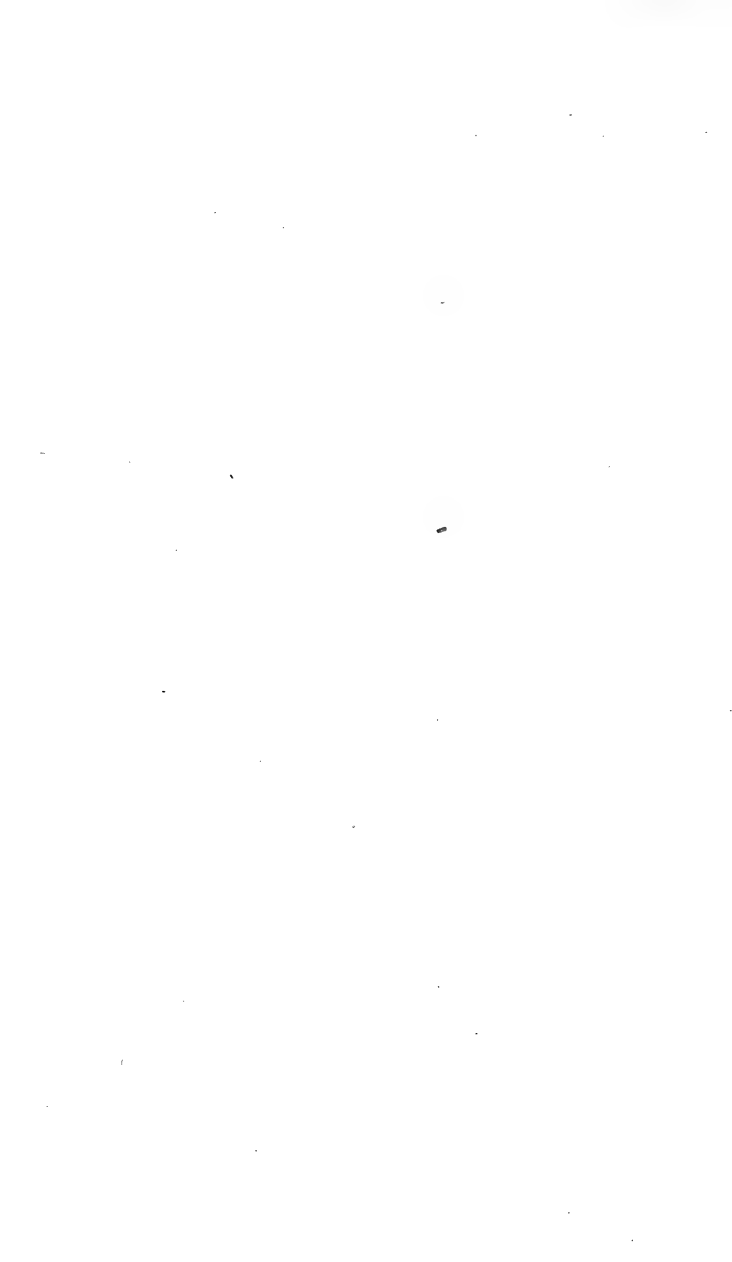
268) : reverse, a female seated, holding out her hand to two naked children ; legend, PIETAS AVG.

Eight small brasses of Postumus (A.D. 260 to 267) : obverse, bust with a radiated crown ; on the reverse of the most distinct is a figure standing, with a mantle passing from the left shoulder around the body, the right arm being extended ; legend, PAX AVG.

The other relics are—a brass beam in good condition, $7\frac{3}{4}$ inches long ; it is round, but flattened in the centre, which is perforated, and at the two extremities, which are also perforated ;—a small brass scale, such as is now used by apothecaries ;—two circular lumps of lead, convex on one surface and flat on the other, probably weights, the larger weighing $2\frac{7}{8}$ oz. and the smaller $1\frac{5}{8}$ oz. ;—a portion of horse furniture made of lead, having two rings connected by a twisted rope-like bar.

The coins represent a period of about 150 years ; the earliest being about A.D. 117, and the latest about A.D. 267. They had been concealed in the reign of Postumus or shortly after, for there are no coins later than his reign, and several of his are in good condition, evidencing that they had not been long in circulation ; and this view is rendered more probable from the fact that the period when Postumus and the other thirty tyrants usurped power, was one of great disorder and insecurity. Some timid inhabitant of the district fearing plunderers hid his little property in a wood, which in course of time was converted into a bog, and there it lay concealed for 1600 years, till modern improvements brought it to light.

The neighbourhood of Adderstone had undoubtedly, during the Roman occupation of Britain, been frequently the scene of conflict, for there are military remains in the district. About half a mile northward is a round camp, such as is generally referred to the ancient Britons. On Spindlestone Crag is another of a similar description, but larger and more elaborately fortified ; westward from that is another, of a crescent-shape, overlooking the Warn ; and on the north side of the Warn is a Roman camp of a square form, which is represented to be the *Castrum ulterius*, or out-fort to defend the pass of the river and harbour. The hamlet near to it, formerly called Ulchester, still retains the name of Outchester.



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89. Lieut. Patrick Johnston, R.N., Berwick	Oct. 29, 1856.
90. Rev. Thomas Leishman, Linton	Oct. 29, 1856.
91. George Hughes, Jun., Esq., Middleton Wooler	Oct. 29, 1856.

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Miss Bell, Coldstream.
Miss Hunter, Anton's Hill.



